



# **CITIES AND CITADELS**

## **AN ARCHAEOLOGY OF INEQUALITY AND ECONOMIC GROWTH**

Adam S. Green, Toby C. Wilkinson,  
Darryl Wilkinson, Nancy Highcock  
and Thomas P. Leppard



# Cities and Citadels

*Cities and Citadels* provides an urgent update of archaeology's engagement with economic theory.

Recent events have forced a major reassessment of economic thinking. In the wake of the 2008 Great Recession and the economic impact of the COVID-19 Pandemic, the world finds itself in unprecedented times. Even though archaeology typically concerns itself with the remote past, it must also help us understand how we got to where we are today. This book takes up the challenging new theories of scholars like Thomas Piketty, Mariana Mazzucato and David Graeber and explores their importance for the study of human economies in ancient and prehistoric contexts. Drawing on case studies from the Neolithic to the Classical Era and spanning the globe, the authors put forward a new narrative of economic change that is relevant to the 21st century.

This book speaks to the study of economics in all ancient societies and is suitable for researchers of archaeology, economics, economic history and all related disciplines.

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# Preface

We are undoubtedly living in a time of elevated economic precarity and upheaval. The 2008 financial crash and its (still unfolding) reverberations have merged with the more recent economic shocks associated with the COVID-19 Pandemic, the full ramifications of which will only become evident in the decades to come. Alongside these lurching crises of the global economy, it is also clear that wealth inequality has continued to reach unprecedented levels. By the beginning of 2020, Oxfam reported that the global billionaire class now control wealth equivalent to the poorest 4.6 billion people; that is, 60% of the entire human population.<sup>1</sup> Year on year, the disparity only seems to increase.

Such global economic tumults are not just political or social challenges but theoretical ones as well. Take, for instance, the economic effects of the COVID-19 Pandemic. Due to the widespread legal restrictions placed upon production and consumption, a rapid economic contraction occurred across the globe during the first half of 2020. Between the fourth quarter of 2019 and the second quarter of 2020, the United States experienced a contraction of 19.2%, the sharpest reduction on record.<sup>2</sup> According to the International Monetary Fund, world gross domestic product (GDP) experienced a similar growth rate of -17.19% during the first quarter of 2020.<sup>3</sup> At the same time, a report by the United Nations estimated that in the second quarter of 2020, some 400 million full-time jobs were lost from the global economy.<sup>4</sup> Economic headlines during the pandemic made for very grim reading.

Of course, economic news was not bad for everyone. The ten richest billionaires actually saw significant increases in their wealth because of COVID-19, doubling on average within the first year of the pandemic.<sup>5</sup> According to a World Inequality Report estimate, the world's billionaires collectively owned 2% of household

1 [www.oxfam.org/en/press-releases/worlds-billionaires-have-more-wealth-46-billion-people](https://www.oxfam.org/en/press-releases/worlds-billionaires-have-more-wealth-46-billion-people)

2 [www.reuters.com/business/us-economy-contracted-192-during-covid-19-pandemic-recession-2021-07-29/](https://www.reuters.com/business/us-economy-contracted-192-during-covid-19-pandemic-recession-2021-07-29/)

3 [www.imf.org/external/pubs/ft/ar/2020/eng/spotlight/covid-19/](https://www.imf.org/external/pubs/ft/ar/2020/eng/spotlight/covid-19/)

4 [www.cnbc.com/2020/06/30/coronavirus-expected-to-cost-400-million-jobs-in-the-second-quarter.html](https://www.cnbc.com/2020/06/30/coronavirus-expected-to-cost-400-million-jobs-in-the-second-quarter.html)

5 [www.theguardian.com/business/2022/jan/17/world-10-richest-men-see-their-wealth-double-during-covid-pandemic](https://www.theguardian.com/business/2022/jan/17/world-10-richest-men-see-their-wealth-double-during-covid-pandemic)

wealth at the start of 2020, whereas, by the end of that year, the percentage had increased to 3.5%.<sup>6</sup> There are around 2,755 billionaires in the world right now, a tiny fraction of the world's population. What about the economic stratum immediately below them? That is, those whose household wealth is measured in the tens or hundreds of millions but not reaching a billion. The richest 520,000 individuals on the planet, each with a net worth of at least 16 million euros, also saw their share of global household wealth increase—albeit more modestly—from 10% to 11%.<sup>7</sup> The extremely rich, it seems, largely benefited during the pandemic; and on average, the richer they were to begin with, the greater their percentage gains over the course of 2020. The obvious question is: how exactly did this occur? At a time when huge amounts of wealth were being wiped out, how did the wealthiest segments of humanity become even more prosperous? To be clear, the issue is not simply that the ultra-rich became richer—the real point of interest is that the rate of growth in their fortunes actually *increased* as compared with the preceding period. In the economically ‘normal’ years between 2013 and 2018, the wealth of the global billionaire class grew by only 35%,<sup>8</sup> whereas, during less than two years of pandemic, it increased by 60%.<sup>9</sup>

Over the years, we have all grown accustomed to headlines saying that billionaires have grown richer. But what is remarkable, with respect to the pandemic, is the apparent inverse relationship between billionaire wealth and general economic growth—the worse the global economy performed, the faster the rate of wealth accumulation in the very richest households. It should be obvious from such figures that the popular notion of ‘trickle-down’ economics, in which an increase in the wealth of the rich is supposed to benefit the economy as a whole, is a false one. That, in itself, is not particularly surprising; the weaknesses of neoclassical economics were apparent to many, long before the pandemic occurred. Yet, the effects of the pandemic also present a challenge to Marxist theories. In a classic Marxist framework, the capitalist class (i.e. the bourgeoisie) is thought to accrue wealth by exploiting the proletariat. The workers, via their labor, generate value, and the owners of the means of production then cream off the surplus. In other words, it is the gap between the market value of commodities and the returns given to labor in wages that generate the profits of the capitalist class. Yet, under such a theory, a decline in production should be, in economic terms, bad for the capitalists. If there is less productive labor taking place, there is less opportunity for exploitation, by definition. But during the Pandemic, when production rapidly declined, the owners of capital somehow grew their wealth at a much faster rate than they had when production was increasing. Despite clearly having (very) different perspectives on

6 [www.reuters.com/business/pandemic-boosts-super-rich-share-global-wealth-2021-12-07/](http://www.reuters.com/business/pandemic-boosts-super-rich-share-global-wealth-2021-12-07/)

7 [www.reuters.com/business/pandemic-boosts-super-rich-share-global-wealth-2021-12-07/](http://www.reuters.com/business/pandemic-boosts-super-rich-share-global-wealth-2021-12-07/)

8 [www.washingtonpost.com/business/2019/11/08/there-are-more-billionaires-than-ever-their-fortunes-took-big-hit/](http://www.washingtonpost.com/business/2019/11/08/there-are-more-billionaires-than-ever-their-fortunes-took-big-hit/)

9 [www.cnn.com/2022/01/16/business/oxfam-pandemic-davos-billionaires/index.html](http://www.cnn.com/2022/01/16/business/oxfam-pandemic-davos-billionaires/index.html).

capitalism, neither neoliberal nor classic Marxist economics seem to be able to account for the empirically observed behavior of the modern world economy.

If the main economic theories of the 20th century AD—orthodox and heterodox alike—are unable to fully account for even recent history, what confidence can we have in their ability to explain events that occurred thousands of years ago? After all, we have far richer data available for the study of modern economies than with respect to ancient ones, and it should be easier to generate workable theories in contexts where empirical sources are more plentiful. It is, of course, not a given that theoretical perspectives developed with respect to modern capitalism should be applicable to the analysis of economic change across deep time; but they should, at a minimum, be shown to work for the present, before they can be fruitfully applied to the past.

Our goal in this book is to bring new economic theories to bear on the study of past economies, and especially, on the emergence and growth of wealth inequalities in ancient contexts. By ‘new’ economic theories, we predominantly mean those that postdate the year 2008, the first (but not the only) great economic shock of the 21st century AD. Such work is of special interest to us because it has been formulated against the backdrop of recent economic upheavals. Yet, this should not be taken to mean that we discount the value of older ideas. For example, the reader will notice that, at times, we still draw on a number of Marxist ideas (especially with respect to the creation of value) and integrate them into our broader arguments.

As the reader will see, we have made particular use of the work of three authors to generate new interpretive lenses for thinking about ancient economics: Thomas Piketty, Mariana Mazzucato and David Graeber. Each of these scholars has published substantial works on economics since 2008 that have, as yet, had little impact on archaeological thought—a lacuna that we have attempted to rectify with this book. We will leave a more detailed account of their arguments—and why we think they matter—for the introductory chapter. For now, a couple of points are worth emphasizing. In choosing these three authors as our main inspiration, we are not suggesting that they are the only current economic theorists worth reading. We engage with their work simply because 1) we are familiar with it and 2) we think it has relevance to archaeology. We did not set out to write a textbook or a comprehensive review of recent economic theory, nor indeed, of economic archaeology *per se*. We simply believe that archaeology is in urgent need of a theoretical update, and this volume is our attempt to contribute to such a project.

A few comments are also necessary with regards to how this project came to be. This book is *not* an edited volume. It is a monograph with five authors, written in a single scholarly voice. The arguments and ideas presented within are the product of our collective discussions—a group consensus, rather than a series of individual statements. It should therefore be read as the outcome of our collective labors. Every part of the book has been drafted, redrafted and edited by each of us so many times that, even if we wanted to, it would now be difficult to say who wrote any given sentence. Unsurprisingly, we could never have produced this book without substantial agreement around its core arguments and ideas. That said, there are

portions where some of us, as individuals, might have had different interpretations or chosen a different phraseology. As we say, the text is the product of consensus; sometimes, we even voted to resolve particular points of disagreement.

For the intellectual content, this book was an 'egalitarian' endeavor, and there is no author hierarchy with respect to the development of the ideas presented. Of course, the practicalities of publishing mean that there still had to be a first author, second author (etc.). For us, we decided to determine this by the organizational activities which coalesced the ideas and texts into the whole. Adam Green is the first author because he took on the challenging job of bringing us to order. He chaired all our meetings, drew up the agenda and scheduled individual items for completion. He also dealt with all communications with the press. From a logistical perspective, Adam was responsible for keeping us on track and keeping us focused on the most urgent tasks at any given moment. Toby Wilkinson is listed as the second author because he was responsible for generating all the figures in the volume. When producing a book, it is easy to get overly fixated on the *writing* part, but for archaeologists especially, the figures are always a major portion of the actual work. Darryl Wilkinson (no relation to Toby, by the way) is listed as third author because he drafted the proposal that was initially submitted to the press and did the last full copyedit of the manuscript before submission. None of us can remember why Nancy Highcock is listed as fourth author and Thomas Leppard as fifth; by that stage, it is possible we just flipped a coin.

With hindsight, writing a book in this fashion has taken far longer than had we just written a traditional edited volume. Yet, we think it was worth the extra labor. There is a growing appetite for works that deal with archaeological evidence on a grand scale, a demand that has thus far largely been filled by non-archaeologists. Such volumes often draw criticism on the grounds that they fail to adequately grasp the nuances of the archaeological record in different parts of the world. For archaeologists and non-archaeologists alike, this is the inevitable problem that arises when a scholar seeks to make claims about a region or discipline outside their specialist domain. It is a problem we hope to have ameliorated here, if not entirely avoided. Not only was this book written by five archaeologists, each of the authors has a different regional specialism: South Asia (Adam Green), Anatolia, the Caucasus and Central Asia (Toby Wilkinson), the Andes (Darryl Wilkinson), Mesopotamia and Anatolia (Nancy Highcock) and the Western Mediterranean and insular Pacific (Thomas Leppard). This does not make us immune to error, by any means, but it does provide a breadth of expertise that would be difficult for any single scholar to replicate, and this is a significant advantage when seeking to discuss archaeological evidence on a global scale. We are committed to the idea that archaeology has much to gain from producing synthetic theoretical works and that co-authored monographs are an important way to realize this goal. But we would only recommend it to a group of very good, very dedicated and very forgiving friends.

It is a truism that the past is inevitably interpreted through the lens of the present. However, this does not mean that the past can be reduced to a discursive construct. Speaking for ourselves, we are committed to the idea that the archaeological record itself always has the capacity to shape what we can credibly say and think

about it. Nonetheless, the questions we choose to ask of archaeological materials, the assumptions we use to make sense of them, the intellectual frameworks that help us choose between competing explanations; all these things are inextricable from the crises, concerns, foibles and fashions of the present moment. Rather than try to reduce the influence of the present on how we interpret the past or discount it as a form of 'bias,' our preference is to embrace the urgencies of the modern world. In other words, the problems that afflict us today can be a potent source of new questions and interpretations with respect to the ancient world—something that is, perhaps, especially true when it comes to questions of economics. The impetus behind this book is, thus, to think about the archaeological record in the context of present-day economic circumstances; to offer, in a nutshell, an economic archaeology fit for the 21st century AD.



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## **Note on data and maps**

The maps and graphs shown in this book will also be available online to download in high resolution (address below). The source spatial and other data will also be made available in free format where copyright allows, alongside the code and bibliographic references to the sources of data used and the software packages, where appropriate. Most of the maps have been constructed using the Peirce Quincuncial projection, first proposed by American polymath, metrologists and semiologist—and influential figure in archaeological theory—Charles S. Peirce.

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# 1 Pasts

## Toward a critical paleoeconomics

The deep history of human economics is often omitted from debates about social inequality or sustainable economic growth. Yet, today's economic order represents only a fraction of human history, the latest manifestation of trends that have unfolded over millennia. Accordingly, there are insights to be gained from investigating economic changes at far greater temporal scales. Unfortunately, most academic studies of human economies have limited time-depth, drawing mainly on data from capitalist economies, constraining their perspective to recent decades, or at most, a couple of centuries. As a result, the ways in which quotidian patterns of production and discard produce seismic social changes over the *longue durée* (e.g. Braudel 1967) or how acute sub-century disruptions can reconfigure social relations (e.g. Hobsbawm 1962) remain poorly understood for more than 95% of the human story. Archaeology is the discipline best qualified to bring the full range of past human economies into economic debates. This potential to learn from the past is apparent (e.g. Feinman and Garraty 2010; Graeber 2011; Kohler and Smith 2018; Milanovic et al. 2011; Piketty 2014, 2020). Yet, the story of many human economies remains largely untold. This is a result of the fact that archaeologists, especially since the 1980s, are not as engaged with the economic debates of the present as they should be. Perhaps this reflects the fact that, until 2008, mainstream economics emphasized its own narrow set microeconomic and neoclassical agendas (Chang 2011; Krugman and Madrick 2015).

We argue that such trends in both archaeology and economics are related to the profound influence of neoliberalism, a political movement that was prevalent at precisely the moment when archaeology began growing beyond its earlier engagement with post-war economics. This influence was often implicit, veiled or indirectly ascribed to common sense. On the one hand, this is not surprising. All academic disciplines are subject to the public concerns and political ideologies of their time, and we trace a little of that intellectual history in this introductory chapter. On the other hand, it is also the duty of scholars to reflect and critique the biases implicit in their own social contexts and to try to see beyond them. Archaeology has too often been derelict in this duty when it comes to economics, largely ignoring the paradigms of scholars concerned with less remote periods in time. Meanwhile, scholars from other disciplines have been creating (or taking as given) speculative histories about the origins of inequality, urban society, money and the state

that are simply not supported by data from the past. Such speculations—poorly grounded in actual archaeological research—have a habit of simply reflecting the myths of current, dominant ideologies. And on those occasions where economists and other non-archaeologists do engage with relevant literature, the ideas and evidence marshaled are usually severely out of date. As archaeological datasets become increasingly robust and are augmented by major advances in method, it becomes all the more important to interrogate such myths and counter them with more viable alternatives.

This book is an attempt, with the theoretical help of perspectives from a number of post-2008 ‘heterodox’ economists, to revivify archaeology’s role in debates about human economies. We offer a grand narrative of the archaeology of inequality and economic growth that combines key economic theories and new archaeological data. While our main message is for archaeologists and entails a call to re-engage with economics and explore how our economies have varied and changed over the long-term, the critical paleoeconomics we advocate will be relevant to wider audiences, including economists, economic historians and anthropologists. Novel paradigms for thinking about the deep history of economic change are essential to public and political debates for the future. But first, we must diagnose archaeology’s current predicament.

### **Archaeology and economics**

Compared to today, archaeology’s relationship with economics was much closer during the early 20th century, when the discipline shifted to take materialist and functionalist research questions more seriously. A keystone was Karl Polanyi’s (1944) book, *The Great Transformation*, which used historical research on ancient economies to set up the ‘substantivist’ paradigm that came to dominate economic anthropology, ancient history and archaeology until the 1980s. For example, following Polanyi, Moses Finley (1973: 116) wrote that the economies of antiquity lacked capitalism’s interest in “technological progress, economic growth, productivity and efficiency.”

We will explore substantivism’s impact across disciplines in due course. However, from the outset, it is important to highlight that Polanyi’s book was originally titled *The Origins of Our Time*. His ‘our time’ was a reference to the turmoil of the early 20th century—hyperinflation, the Wall Street Crash, the Great Depression and two world wars. Older ideas about the market and the state were under fire, and it was becoming clear that major government interventions were needed to address global crises. John Maynard Keynes (1936) had famously argued that markets *needed* states to generate demand; for example, through public spending that would sustain employment and boost the production of essential goods. Polanyi made ancient economics part of this debate, arguing that capitalist economies were those in which markets had escaped the bonds imposed on them by the states that had created them. Though his book was about ancient economics, Polanyi’s goal was to explain how the economies of his day arose in the build-up to World War II.

Before capitalism, Polanyi held that economies were based on ‘reciprocity’ between rulers, rather than Adam Smith’s (1776) ‘invisible hand’ of supply and demand. Transactions between ancient peoples were assumed to follow models of exchange derived from ethnographic studies of small-scaled societies, as seen in the Trobriand islanders’ *kula* exchange (Malinowski 1922), and thus were intended to strengthen social bonds rather than generate profit. This sort of pre-capitalist exchange fulfills Mauss’s (1925: 8–10) “spirit” of the gift, rather than producing efficiency through Smith’s invisible hand. Polanyi’s substantivism held that non-capitalist economies were shaped by a universal human desire to give something in exchange for something received. By contrast, capitalist markets were not ‘embedded’ within reciprocal obligations between rulers and ruled, and instead, competed with states to distribute resources. Polanyi’s ideas echoed the economics of his day, a period when nation states across the world were creating social welfare programs like the New Deal in the United States and the National Health Service of the United Kingdom.

Polanyi challenged the prevailing notion that value was inextricably derived from impersonal market transactions (e.g. Simmel 1978). That view was part of a wider constellation of ideas which we would now associate with ‘market fundamentalism,’ a theoretical perspective that has shaped Euro-American political economies since at least the 1700s (e.g. Mazzucato 2018; Piketty 2020). Market fundamentalism holds that the invisible hand should be the *only* hand, free from the centralized institutional control of the state. This view had been challenged in the first half of the 20th century but saw a resurgence in mainstream economics in the 1980s, the ramifications of which we turn to later.

For Polanyi, markets were a modern innovation, not a timeless feature of human societies. As a result, emphasizing markets left us unable to understand past economies. Past economies were embedded within the full range of a society’s social relations—part of society’s substance. They were inextricable and thus impossible to study on their own. Polanyi’s substantivism had a lasting influence over subsequent generations of economic anthropologists, archaeologists and ancient historians. Arguably, one of its main tenets was the view that there was an irreconcilable difference between modern and ancient worlds. This reflex discouraged mainstream economists from looking to the past for data and ideas and meant that archaeologists generally kept their distance from the discipline of economics, since its approaches were anachronistic with respect to ancient societies.

V. Gordon Childe, who was (and perhaps remains) one of archaeology’s most influential theorists, was also interested in the economic debates of his times. His seminal works focused on the how humans ‘make’ their societies and how their economies differed over time (Childe 1950, 1951). As a committed Marxist, he was particularly interested in the transformative consequences of economic relationships between different classes (Green 1981; Trigger 1984). Marx had speculated that capitalism came about after a revolution in which the class of people who controlled factories (the industrial means of production) became a society’s ‘ruling class’ (Marx 1976: Ch. 31). These industrial capitalists supplanted the class of people who controlled land—the agrarian means of production (see also McGuire

2002; Patterson 2003; Paynter 1989). Extending this narrative deeper into the past, Childe built a theory of pre-capitalist revolutions. Drawing on a synthesis of growing archaeological datasets, Childe traced the formation of an agrarian ruling class that supposedly predated the industrial capitalists. Just as the Industrial Revolution had supplanted feudalism, Childe's Urban Revolution swept away the old order that had been established by the Neolithic Revolution.

For many archaeologists working between 1940 and 1980, particularly those who paid attention to contemporary anthropological theory, the 'economy' primarily described how a society provisioned itself, sometimes narrowly focused on food procurement within a certain set of ecological parameters. The Spencerian evolutionism that typified 19th-century anthropological thought had divided societies into different types and, in the 1960s and 1970s, these ideas were refined and revised using new ethnographic and archaeological data to create a neoevolutionary strand of anthropological archaeology (e.g. Adams 1966; Flannery 1972b; Service 1962, 1975; White 1959; Wright 1977; Wright and Johnson 1975). Neoevolutionary narratives focused less on transitions than on classification of different societies into political and economic archetypes. Societies were seen to progress linearly through these archetypal stages, beginning as small bands, moving on to tribes, then to chiefdoms and, eventually, becoming populous states. Types were distinguished by complex and contested factors, such as modes of kin organization, subsistence strategies and degrees of political hierarchy. Many neoevolutionists also argued that environmental conditions determined societal forms (e.g. Binford 1965; Steward 1972). In the context of Cold War public discourse, neoevolutionist scholars tended to eschew Childe's focus on revolution in favor of more systemic explanations, although many still retained Marxist ideas (if not always explicitly).

Most neoevolutionary narratives downplayed trade, especially for non-state societies, aligning with substantivism. The convergence of these paradigms is evident in the works of economic anthropologist Marshall Sahlins, who, along with Elman Service, was a student of the prominent neoevolutionist Morton Fried (see Fried 1960) and close colleague of Leslie White. Sahlins had a strong influence on contemporary and later archaeologists interested in exchange in prehistory. In *Stone Age Economics* (1972), he drew on ethnography to contrast patterns of exchange thought to pre-date Polanyi's great (market-based) transformation. Sahlins applied rudimentary hour counts to hunter-gatherer ethnographies, speculating that hunter-gatherers worked substantially fewer hours than previously thought, a strategy that helped them reproduce a relatively egalitarian economy. Though a critical insight into how societies reduce disparities, this argument de-emphasized the search for similar strategies in non-hunter-gatherer societies. Also in *Stone Age Economics*, Sahlins outlined a 'continuum of reciprocity' that encompassed forms of exchange that built group cohesion, like food-sharing within a family, as distinct from trade between strangers, which he called 'balanced reciprocity.' This argument served as a foundation for many of economic anthropology's most important insights.

Archaeologists inspired by neoevolutionism could not agree exactly how to distribute past societies into one group or another, a common consequence of trying to apply abstract typologies to real-world social groupings. In response, a kind of

soft neoevolutionism emerged toward the end of the 1980s, around the terminology of ‘social complexity.’ In essence, complex societies were those more like our own than Neolithic societies. As later critiques have emphasized, the dichotomous language—complex versus simple—was unfortunate because it drew on the problematic assumption that non-hierarchical societies were organized in a simple way. In fact, maintaining cooperative, egalitarian or heterarchical societies may require organizational systems of equal or even greater complexity (e.g. Fowles 2018; Jennings 2016; Wengrow 2010). Moreover, the scheme implied that societies stopped transforming at the moment they became complex. By this logic, the difference between Bronze Age Uruk and Victorian London was simply one of degree. Categorization is never a problem-free task, but it is a necessary one to make sense of any body of data. This does not mean, however, that any particular categorical schema—such as those developed by neoevolutionist archaeology—are worth keeping.

Between 1950 and 1980, most archaeologists interested in economic matters remained committed to substantivism. There was, as a result, a tendency to dismiss the possibility of learning about present economies by studying the past; the economic processes involved were simply too different to be compared. After all, the stronger the distinctions between non-capitalist, pre-capitalist and capitalist economies were held to be, the less relevant past economies became to understanding human economies more generally. One result of this trend was a tendency to ignore purportedly modern economic phenomena like markets, trade, money and debt. The problem was not that there was no evidence of these; rather, archaeologists tended to overlook that evidence in contexts where economies were thought to be embedded. Nonetheless, it has become increasingly clear that markets, trade, money and debt did, in fact, play important roles in the past (Baron and Millhauser 2021; Feinman and Garraty 2010; Hirth and Pillsbury 2013).

We will consider markets and trade more closely in Chapters 4 and 5. Here, however, we note that one reason such blind spots emerged is that, rather than explicitly engaging with economics, archaeologists became mired in critiques of their own disciplinary paradigms. They focused on questions such as: why should certain social changes occur when and where they did? How many different ‘types’ of society were there? How do societies change from one type to another? Generally speaking, neoevolutionists focused on the organization of information and materials *within* societies, rather than the exchanges that occurred between them. In espousing the view that societies were systems, conflicting agencies within them were underemphasized, making it harder for archaeologists to explain the impact that individuals or even communities had on society at large (Dobres and Hoffman 1994; Dobres and Robb 2000).

Substantivism began to lose its grip on anthropology in the 1980s, under the weight of new approaches derived from economic anthropology and economic geography, which saw categorical differences between modern and ancient economies start to dissolve. In a critique of Sahlins, Arjun Appadurai (1986) argued that the distinction between gifts, which created social relations, and commercial exchange, which applied to interchangeable commodities, had been overstated.



Similarly, Parry and Bloch (1989) argued that distinctions between societies with and without money or between modern and primitive currencies had been exaggerated, and monetization did not always bring about the inequalities associated with capitalism. In both instances, a precept of neoclassical economics—that a thing's value was derived from its exchangeability—became seen as universal truth.

From the other direction, economic anthropologists also began to detect traits associated with non-capitalist economies in capitalist economies. For example, Igor Kopytoff (1986) argued that an object could transition between different spheres of value over the course of its biography—so that, in one context, an object could be a commodity, while in another, a gift. Moreover, Annette Weiner (1992) pointed to ethnographic evidence of possessions whose value arose from the fact that they could *not* be exchanged. In ancient history and classical archaeology, the recognition of past markets sparked new attempts to bridge the substantivist and formalist perspectives, while Douglas North's (1990) new institutional economics argued that all forms of exchange are enabled and constrained by social institutions. The universality of the new institutional economics lens provided a license to directly compare ancient and modern economies, at least for Greece and Rome (Scheidel et al. 2007). More recently, it has also been applied to a broader range of social contexts (e.g. Holland-Lulewicz et al. 2020).

The geographer Immanuel Wallerstein (1974) argued that, under modern capitalism, there was a global division of labor between core regions, in which value-adding activities like production took place, and peripheries, from which resources were extracted for transport to the cores. As we saw earlier, many archaeologists had been skeptical of neoevolutionism's tendency to reduce societies to self-contained systems and its neglect of the plentiful archaeological evidence for long-distance interaction in the past (Adams 1974; Jennings 2010; Sherratt and Sherratt 1993). Some scholars found in Wallerstein's world-systems theory a means to argue that trade, especially the movement of goods between one cultural region to another, was an important driver of social change (e.g. Ekholm and Friedman 1982; Kohl 1987; Sherratt and Sherratt 1993; Stein 1999a). These ideas had a particular impact on the study of ancient urban economies and their relationships to the non-urban societies around them. For example, Finley's (1973) 'consumer city' model for ancient Greece held that its cities were essentially parasites, living off the labor of their immediate hinterlands via rents and taxes, and made little contribution to trade, growth or production. In contrast, world-systems theory enabled a new generation of archaeological theorists to conceptualize cities as value-adding machines, consuming raw materials from both the immediate hinterland and distant regions but then transforming them into desirable commodities for export back to periphery, as seen in, for example Bronze Age Uruk (e.g. Algaze 2008) or Classic Teotihuacan (e.g. Carballo 2013b; Cowgill 2015).

### **Archaeology and neoliberalism**

Childe's revolutionism, Polanyi's substantivism, neoevolutionism and world-systems theory have all been subject to insightful critiques (Blanton and Fargher

2008; Feinman and Garraty 2010; Hart 2011; Hirth and Pillsbury 2013; Jennings 2016; Pauketat 2007; Smith 2009; e.g. Trigger 1989; Wright 2002; Yoffee 2005), and we will avoid reiterating these arguments here. What is important to emphasize, instead, is that, as archaeologists either subscribed to or became enmeshed in refuting these paradigms, their direct engagement with economic thinking from outside the field waned. Moreover, as implicit substantivism fell out of fashion, ideas from a very different ideological perspective began to creep into its place.

Neoliberalism as a political movement was inspired, in large part, by a resurgent neoclassical economics led by theorists such as Friedrich von Hayek (1944) and Milton Friedman (1969), in opposition to the post-war Keynesian consensus on the nature of the relationship between the economy and the state (King and Wood 1999). Delineating the exact characteristics of neoliberalism is not always straightforward, and some uses of the term might be incompatible with others (Flew 2014). For our purposes, we define ‘neoliberalism’ as an ideology that naturalizes market fundamentalism to the exclusion of all other economic models. As a dominant agenda in the US and Europe from the 1980s, neoliberalism has shaped a wide range of policies on the precept that rational decision-making within markets yields the optimum distribution of goods. Management of resources should therefore be privatized for maximum efficiency and allow the circulation of goods via unfettered market exchange. The proper role of the state was to protect the private property of individuals and corporations but not to shape supply and demand itself. Neoliberalism thus held that economic activities should be deregulated, not subject to ‘interference’ by the state, and that any inequalities that resulted from the vagaries of market exchange were justified by-products of increased total efficiency and economic growth. Politically, these ideas were sold as creating ‘trickle-down’ advantages: by enabling particularly talented individuals or companies to accrue wealth freely, the tide of wealth would rise for all. While we suspect few archaeologists would self-identify as neoliberals in any political sense, elements of neoliberalism and neoclassical economics have seeped into the tacit attitudes of many archaeologists and shaped their thinking about past economies.

Paradoxically, an unconscious embrace of neoliberal ideas coincided with a devaluation of narratives of long-term and large-scale change within archaeology. As a result, it has not typically been archaeologists who have used archaeological data to make interventions in contemporary debates. A commonly cited example is Jared Diamond’s use of archaeology to advance claims about ‘collapse’ (e.g. McAnany and Yoffee 2010). But the same is true of James Scott’s (2017) synthesis of archaeological data about the invention of agriculture and the emergence of the state, *Against the Grain*. While non-archaeologists routinely recognize the significance of archaeological data and interpretation for investigating the deep history of many different social processes, archaeologists themselves have mostly shied away from creating their own grand narratives. The reasons behind archaeology’s disciplinary insecurity are not clear, especially as it arose in the midst of stunning growth in our datasets, along with significant advances in method. Partly, archaeologists may fear stepping on their colleagues’ toes, since the increasing degree of specialization and diversification of methods within the discipline has meant that

generalizing projects almost inevitably do injustice to empirical richness. Similarly, the degree of technical advances within archaeology and the ability to focus a wider barrage of techniques on ever smaller trenches may have obscured the big picture. Broader cultural dynamics have only reinforced archaeologists' neglect of contemporary economics after the 1980s. After all, following the dissolution of the Soviet Union, neoliberals proudly declared that history was over (e.g. Fukuyama 1992). If society was no longer changing, why should archaeologists show any interest?

Societies continue to change, of course, and archaeology is the foremost discipline for investigating social change across long-term timescales. Archaeology provides a lens both on the great variety of human economies that people have made over time and on the ways they have changed. This book brings 21st century advances in archaeological method and theory into dialogue with emerging debates within heterodox economics, presenting a new grand narrative of long-term economic change that is not bound by neoliberalism. Toward that end, we outline later what we think are promising new trajectories in archaeological thinking about ancient economics, then move to clearly define some fundamental terms. From there, we present our perspective on heterodox economic ideas developed by Thomas Piketty, Mariana Mazzucato and David Graeber and explore their implications, creating the foundation for a new critical paleoeconomics. However, before we turn toward our narrative, we must first excise two pernicious myths from archaeological thinking—elite determinism and the cult of the entrepreneur—if we want to address some of the pitfalls that plagued the archaeology of the neoliberal era.

### **Elite determinism**

Archaeology's disengagement with contemporary economics made it vulnerable to the widespread assumption that elite individuals are the engine of human economies. We call this myth 'elite determinism.' Elite determinism is linked to the ideal of the entrepreneurial billionaire, an archetype who has over time crept into thinking about how cities, governments, and technologies emerge and change. The myth supports the notion that individuals who gain the most profits—the rich and super-rich—are the ones most responsible for the functioning and shape of society.

Here, it is worth pausing for a moment to consider the term 'political economy.' These words often appear together, quite simply because of the fact that the way wealth accumulates within a society is the outcome of a particular constellation of political relations. This is why Adam Smith was concerned with the wealth of nations and why Marx was concerned about the power asymmetries between different classes. One of the political goals of neoliberalism has been to transform economic wealth *into* political power with as little mediation as possible. Thus, it is quite natural to assume that the people at the top of political hierarchies and those with the most wealth comprise a common elite. However, the mechanisms that transform wealth into power in the 21st century are the outcome of millennia of social change, and it is not always possible to connect archaeological evidence for political power—such as the erection of a monument—to evidence of wealth, or even to evidence that a single or small number of individuals wielded that power.

Elites have long served as ready-made protagonists for archaeological narratives. Understanding the emergence of class and stratification was the stated goal of many neoevolutionary theories (e.g. Flannery 1972b). For example, in a classic article, Wright and Johnson (1975) argued that social complexity emerged when elites forged the centers of power they needed to control the larger economy, form states and institute change. A generation later, in *Understanding Early Civilizations*, Bruce Trigger (2003) argued that social stratification—the emergence of elites—was the defining feature of early civilization. From still another theoretical perspective, Susan Pollock (1999) harkened back to Marx (and echoed Childe) when she argued that the emergence of elite exploitation is the most important process apparent in social change.

A full discussion of elite determinism's impact on archaeological thinking would probably fill a volume on its own. For our purposes, it is sufficient to argue that the myth made archaeology vulnerable to neoliberal thinking. The archaeological tradition of political economy, as an addendum to neoevolutionism, thus provides a useful starting point. The primary concern of the archaeological study of political economy is relationships between artisans, elites and (sometimes) consumers (e.g. Brumfiel and Earle 1989; Costin 1991; D'Altroy and Earle 1985; Earle 1982; Halstead and O'Shea 1989; Hirth 1996). Political economists reintroduced, to some extent, the Marxist notion that social change derived from class conflict and downplayed the challenges that societies faced as a result of environmental constraints. Adapting the Childean view of surplus, these scholars argued that the political part of the economy was that which went beyond household subsistence. Social change was determined by relations between ruling elites and the people that they ruled. For example, rulers could finance political activities by provisioning different kinds of staple goods, which provided them with the ability to expand the quantity of labor invested in certain state-sanctioned activities; or accumulating wealth, which could be converted into staple goods but was more important for sharpening hierarchical class distinctions (D'Altroy and Earle 1985).

Elite determinism has had a myriad of effects on how economic change in the past has been interpreted. For example, craft specialization is archaeologically detectable as standardization within a class of artifact, which rose as the number of people who produced that class of artifact fell (Rice 1981). Elite determinism holds that this material phenomenon results from a ruling class emerging and provisioning a subset of people with economic surplus, allowing them to gain the skills and knowledge necessary to become craft specialists. Thus, evidence of specialization came to be regarded as evidence for stratification, and the existence of elites could thus be inferred where the material evidence showed that a restricted group of people made things for society as a whole. Archaeologists developed this and other principles as a theoretical toolkit for converting the material patterns they found in archaeological assemblages to assumed types of social relation between artisans and rulers. Craft specialists may work full-time or part-time, independent of or dependent on rulers, in their houses or in workshops (Brumfiel and Earle 1989; Costin 1991; Peregrine 1991). From these distinctions it was thought possible to detect a moment in the past when craft production moved out of the household, a

seminal change thought to signal the emergence of stratification through industrialization (Costin 1991; Sinopoli 1988; Wright 1991).

While the political economists investigated the elite exploitation of artisans within past societies, other archaeologists turned toward interactions between societies. As we saw earlier, this is an area that was neglected under neoevolutionism. Adams (1974) argued that trade—which he saw as profit-seeking exchange between long-distance merchants from *different* societies—explained ancient economies in West Asia’s first cities better than the Childean agrarian exploitation. He argued that episodic trade produced difficult-to-trace discontinuities in material traditions and thereby had exogenous effects. These effects were, thus, directly caused by the self-interested actions of ‘entrepreneurial’ merchants. Trade between these merchants occurred between societies and reinforced class divisions within their own communities. Building on this idea, Andrew Sherratt (1995) proposed an interactionist model for long-term social change. Evidence for trade was a good proxy for sustained cultural and intellectual interaction and could better explain the emergence of cities over the long term in the Mediterranean and West Asia than could agrarian production on its own. Trade thereby assumed a much more important role in archaeological thinking, as universal to human society as any other political, religious or social feature (Oka and Kusimba 2008).

Many archaeologists also began building narratives based on the actions of wealthy farmers or merchants, reflecting a growing concern with the agency of social groups within societies. Searching for ever-smaller explanatory units, some archaeologists ultimately focused on the ‘household,’ a turn that built on a strong tradition in anthropology, inspired by feminist critiques, to interrogate economic arrangements that devalue social reproduction (Allison 1999; Leacock and Safa 1986; Rathje and McGuire 1982; Tringham 1991). Theorists of craft specialization emphasized breaks between household and larger-than-household production (Blanton 1994; Smith 1987; Wilk 1989). Households were thought to control craft production until it was seized by a ruling class, a case of elites interfering with the supposedly natural order of households who organize productive activities in pursuit of their rational self-interest.

These theoretical developments occurred without an explicit engagement with contemporary economic debates. As a result, arguments that supported apparent common sense—shaped, as it was, by the dominant neoliberal ideology—gained purchase more readily than those that challenged it. As archaeologists challenged the bloodless systems of neoevolutionism, they inadvertently created a theoretical space that could be populated by myths from market fundamentalism. In particular, explanations that posited trade and consumption as prime economic movers crowded out those that favored collective, ecological or social reproductive processes. The elites and the hierarchies they represented—ever present—could be invoked whenever a particular historical change was in need of explanation. Often lost was an awareness of the fact that not all hierarchies were the same, nor did every element of a social system have a fixed hierarchical relationship to others (Crumley 1995).

Another subtle manifestation of elite determinism is apparent in the assertion that consumption, not production, drove social change (Morehart and De Lucia

2015). In recent decades, archaeologists have become less concerned with the social relations behind production and distribution and more with consumption patterns and the ways elites constructed their identities. Nowhere is this clearer than in the literature on craft specialization. Clark and Parry (1990) explicitly stripped Marxist theory away from interpretations of craft specialization, arguing that craft objects were any that were consumed by people who did not make them. Crafts changed societies through the social relations of consumption, especially as manifest in elites, not production. Peregrine (1991) argued that the ways that specialized production of craft goods reinforced the political authority of a ruling class was not even economic, but political and social. Algaze (2018) argued that cities burned away surpluses, consuming the people and resources of the social systems that give them life. Elite tastes, not the social relations that drove production, were therefore prime social movers. Monica Smith (2017) posited that the main problem facing complex societies is not how to produce and distribute but how to manage plenitude and abundance. It is as though surpluses sprung into existence on their own, absent social relations, and thus, required no explanation.

Earlier, we reviewed a sample of the ways that elite determinism has impacted archaeological thinking in the neoliberal era. By the 21st century, archaeologists had largely turned the page on neoevolutionism, adding depth and nuance to their explanations and highlighting a fuller range of agencies in past societies. However, turning the page on neoevolutionism did not stem the creeping advance of neoliberal ideology into archaeological thinking. The result was the rise of an extreme manifestation of elite determinism: the cult of the entrepreneur.

### **The cult of the entrepreneur**

Entrepreneurs are neoliberalism's greatest heroes, so much so that the language of the entrepreneurial spirit has percolated into fields of activity like education, which was previously very alien territory for business plans, customers and profit. Google Ngrams documents the expanding interpretation of virtually all human endeavor as some form of entrepreneurship, with a steady increase in the appearance of the word 'entrepreneur' in English-language book titles over time. The term was relatively rare during the mid-20th century, but increasingly common from 1980 (Figure 1.1), a rise that is, at least partially, explained by the fact that, across disciplines, many activities that would have been labeled otherwise were reclassified as entrepreneurial with the rise of neoliberalism. Compare the prevalence of the term entrepreneur with the declining use of the term 'businessman.' Perhaps this shift reflects the fact that entrepreneurs are what all good neoliberals, not just businesspeople, should aspire to be? Here, we argue that, in their explanations of patterns from the past, some archaeologists inadvertently began to imagine a past populated by astute businesspeople who were ever on the prowl for opportunities that others did not see, investing in innovative ideas and technologies—risks that rightfully yielded hefty profits.

Entrepreneurs are well entrenched within research on ancient economies. Indeed, in Adams (1974)'s landmark article, he defined trade as "innovative, risk-taking,

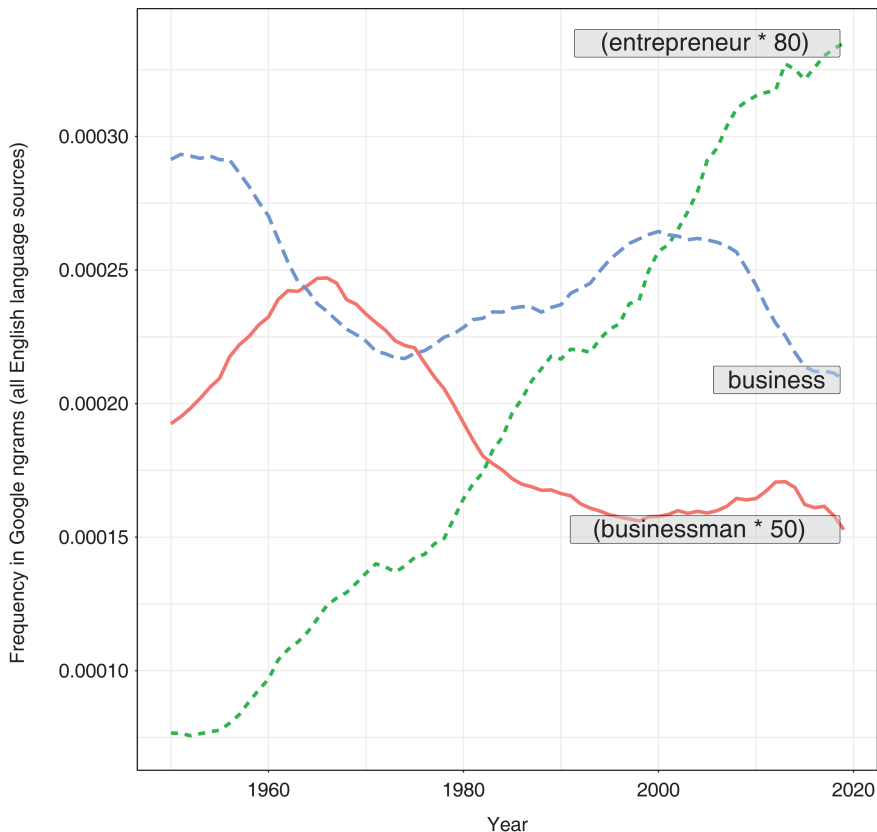


Figure 1.1 Relative global frequency trends of the word ‘entrepreneur’ compared to ‘business’ and ‘businessman’ from Google’s Ngram text database of English literature from 1950.

profit-motivated, *entrepreneurial* behavior” [emphasis ours]. He argued that such behavior, particularly among merchants, resulted in discontinuities, sudden changes that could not be explained via quotidian patterns of agrarian exploitation. Adams’s argument counteracted more systems-oriented archaeological models (e.g. Kohl 1979). But his invocation of the entrepreneur, precisely when neoliberalism was beginning to emerge as a powerful political force, presaged a flood in the use of the term. In addition to becoming synonymous with merchants, entrepreneurship supplanted well-worn discussions of risk buffering and resource procurement. For example, archaeological studies had focused on how past societies managed risk (e.g. Halstead and O’Shea 1989) and avoided collapse (e.g. Tainter 1988). But, in the 1990s, these more comparative framings began to be replaced by those that saw the dynamics of trade and mercantilism as central to the evolution and expansion of many complex societies (Algaze et al. 1989; Hirth 1996; Sherratt 1995;

Veenhof 1997). These developments highlighted economic dynamics that had been omitted from neoevolutionism. But—like risk—interaction, trade and mercantilism are not necessarily synonymous with entrepreneurship.

Unfortunately, as a move away from neoevolutionism resulted in a focus on ever smaller and more varied social units—like the households mentioned earlier—archaeologists began seeing entrepreneurs everywhere. Indeed, this view in many ways supplanted Peregrine’s (1991) previous view of political economy. It was up to households to cunningly invest and grow their production—and profits. Entrepreneurial households came to be seen as responsible for most of the significant social transformations in the past, as we saw in explanations of the emergence of cities in Mesopotamia (e.g. Algaze 2008). Likewise, Hirth (2013) argued that any indicators of production in excess of domestic consumption in ancient Mesoamerican households was evidence for entrepreneurship, citing the circulation of obsidian as evidence of canny Mesoamerican merchants. Monica Smith (2018) made a similar suggestion, positing that early urbanization was evidence of an early and entrepreneurial ‘middle-class.’ This categorized diverse economic agents, from artisans to bureaucrats, as entrepreneurs. Similarly, Hirth (2020)’s discussion of global economic change attributes much to the everyday entrepreneurship of households.

The all-encompassing category of entrepreneurship conflates very different economic activities—everything from household risk buffering to bureaucratic extraction and rent seeking. Ironically, conceptualizing early urban bureaucrats or tax collectors as entrepreneurs caricatures the neoliberal ideal, reflecting general confusion over the role of individuals in economic change. The cult of the entrepreneur implicitly advanced the erroneous idea that collective economic value grows because of the actions of individual risk-takers, ignoring the importance of collective and consensus-based management of labor and resources.

One of the main problems with the cult of the entrepreneur is that it is based on a flat conception of political economy. It assumes that all individuals have the same fundamental capacity for economic participation; that basically everyone is able to invest and take on risk; and that structural relationships between different individuals do not matter. However, there are a wide variety of positions from which people engage in their economies. For example, Marxist theory would place individual households into very different categories, reflecting their relationship to the means of production (e.g. bourgeoisie, petty bourgeoisie, proletariat, lumpenproletariat). While we illustrated some of the limitations of Marxist explanations of social change earlier, we should hardly dismiss the differences between exploiting the labor of additional people and working more. However, if everyone is an entrepreneur, then the only meaningful distinction is whether they are successful or not.

In the wake of the Great Recession of 2008, traditional economic thinking encountered a number of challenges, effectively a response to its failures to predict—or even explain—the upheavals happening around the globe. The big, private banks participating in deregulated financial markets, which were supposed to be adding value to the economy, clearly were not, and discussions of government ‘bail-outs’



for private firms and economic ‘stimulus’ replaced debates about de-regulation and free trade. Consequently, heterodox (i.e. anti-neoliberal) economics, which holds a wider range of views about how states shape economies, experienced a revival. Some economists, such as Mariana Mazzucato, rejected the idea that entrepreneurial heroes are—or have ever been—the prime movers of economic change.

In *The Entrepreneurial State*, Mazzucato (2013) makes the case that, over the last several centuries, at least, it is governments that have financially underwritten the riskiest economic projects. She supports her argument by interrogating the role of public investment in the development of the iPhone, which, in popular discourse, is the quintessential example of private entrepreneurial innovation. She argues that the iPhone was not the product of ‘foolish’ risks Steve Jobs undertook following his soul-searching path in which he found his passion for innovation. Rather, it was the culmination of decades of public investment that allowed Jobs to be in a position to promote the iPhone as a saleable new product. The state had taken the most significant risks by investing in technologies like the transistor, internet, global-positioning systems and touch screens. We therefore have public investment to thank for innovations that neoliberal myths are likely to attribute to visionary entrepreneurs, a view that diverges sharply from the neoliberal caricature of the lazy bureaucratic state. It is a myth that states are inherently risk-averse and slow-moving, and private investors are the ones who are risk-taking, nimble and adaptive. This belief in the entrepreneurial spirit of individuals thus obscures the profound role states play in investment and in creating markets for private investors to operate in in the first place.

Mazzucato makes it clear that societal wealth grows through *collective* investments of labor in ideas and networks, even though well-positioned individuals can often take advantage of those investments. To assume that individuals like Steve Jobs are the ‘wealth creators’ is therefore to have the story backwards. In the modern day, states are necessary to create and shape markets, and collectives will often support risky and long-term investments necessary for economic innovation. A lone entrepreneur is, effectively, a contradiction in terms. Certainly, wealthy managers exist, but only because of collective investment and their location in a system that rewards those holding particular positions. Like all economic activity, innovation and economic growth occur within particular configurations and social relations, and the state is usually the biggest (and therefore most capable) investor. Private individuals are not the principal ‘risk-takers’ in the modern global economy, whose importance as entrepreneurs means they should remain untaxed, unregulated and well-rewarded for their value-making. In many cases, precisely the opposite is true: risks are public, but profits are private. Indeed, it is arguable that many forms of innovation thrive due to interactions between differentiated knowledge producers, a condition that requires substantial public investments that often only states can realize. All of this critique is of course profoundly political. Since at least the 1980s, the public invests, socializing economic risk, while private firms reap the profits of that risk, all while escaping substantial taxation. But what relevance does Mazzucato’s critique have for the past?

## Risk, collective action and heterarchy

Mazzucato's work suggests that we need to rethink entrepreneurship in ancient economies, particularly with regards to a major blind-spot archaeologists have developed with respect to the capacities of collective entities to take risks. Her work complements archaeological efforts to correct elite determinism that have manifested in a reframing of past governance. In an early critique of neoevolutionism, Richard Blanton and colleagues (1996) argued that 'network' strategies amongst past elites, which aggrandized individuals, contrasted with 'corporate' strategies that minimized the performance of stratification. Two years later, Blanton (1998: 151) expanded this argument, positing that some ancient states exhibited more corporate political strategies and were better described as egalitarian, placing firm limits on the concentration of political and economic power. Thus, where an absence of stratification had previously been interpreted as a particular type of elite strategy, Blanton encouraged archaeologists to think more about decentralized and egalitarian social forms. He later expanded this approach along with Lane Fargher (2008), incorporating collective action theory, an approach with roots in new institutional economics (e.g. Levi 1988; North 1990; Olson 1965; Ostrom 1990), into archaeology. Blanton and Fargher undertook a descriptive comparison of the political features of past societies, finding major differences in those thought to have invested in public goods and those that did not. They argued that societies that made bigger investments in collective action also exhibited equitable taxation regimes, institutional accountability and bureaucratization.

A rich scholarship has followed in the wake of this observation. Feinman and Carballo (2018, 2018) have theorized that numerous ancient societies exhibit limited-to-no evidence of elite or top-down social control. They also found a correlation between the level of collective action in an ancient society and the degree to which the polity was dependent on internal (agrarian) forms of production or external (trade) resources that intensified connections between the ruling classes of different societies. Given that collective action requires societies to develop mechanisms for building consensus, archaeologists have proposed that there were many different ways that societies cooperate and compete in the past (Carballo 2013a; DeMarrais 2016; DeMarrais and Earle 2017). Drawing together this fissioning political economic typology, collective action is now considered a pillar of 'good government,' the reinvestment of labor into goods and services that can be enjoyed by broad cross-sections of society (Blanton et al. 2021).

This exploration of the past dynamics of collective action has raised new questions about how past political institutions were structured. While Blanton and colleagues were advancing collective action theory, many archaeologists, inspired by interdisciplinary discussions of social-ecological systems (McIntosh et al. 2000), emphasized the limitations of social hierarchy in explaining patterns from the past. This work drew on Carole Crumley's (1995) argument that societies included multiple elements that could either be unranked or ranked in different ways and under different conditions—a characteristic that she refers to as 'heterarchy.' Other archaeologists explicitly questioned the potential of large-scale hierarchical

political institutions to explain anything other than extraction and exploitation. Inspired by another thread in anarchist theory (Scott 1998, 2009), some archaeologists have argued that social hierarchies are (and were) inherently fragile, and elite control was often ephemeral (Angelbeck 2015; Angelbeck et al. 2018; Graeber and Wengrow 2021; Yoffee 2016, 2019).

Archaeologists should not be satisfied with merely describing economic transformations in the past and should seek the drivers of such changes as well. There is a growing assemblage of conceptual tools that will be needed to construct a new archaeology of economic growth and inequality. For example, some archaeologists hold that population increase is the primary factor driving the emergence of cities. This basic position has long driven debates about the relationship between population size and complexity (e.g. Crema et al. 2017; Drennan et al. 2015; Feinman 2013; Fletcher 1995; Gyucha 2019; Ortman et al. 2016; Shennan and Sear 2021). However, the first cities were more than just massive aggregations of people; they were also sites of intensified production and consumption. Though rarely quantified, it is often implied that cities saw net per capita increases in the sheer quantity of things that existed. Raw increases in the number of interacting people certainly contributes to major differences in social interaction, and economic growth is a distinct feature of all human economies (e.g. Baron and Millhauser 2021; Ortman and Lobo 2020; Ortman et al. 2016). However, economic growth is a measure of material circulation and output per person, which makes it fundamentally different from increases in the number of people within a given context. As a result, growth is quite difficult for archaeologists to assess, although as we will see, the heterodox economic model developed by Piketty suggests it is vital that we do so. We will examine this problem in greater detail, but for now, let us consider the ways archaeology has engaged the topic of inequality in the 21st century.

Following the 2008 crisis, there was a resurgence in the investigation of social inequality within economic anthropology (Bowles 2006; Bowles and Carlin 2020; Bowles et al. 2010; Mulder et al. 2009; Shenk et al. 2010). These researchers—a mix of archaeologists, economists and anthropologists—offered a new typology of inequalities, contrasting unequal access to goods (material inequality), differing physical capacities (embodied inequality) and varying access to social relations (relational inequality). This work revived old debates about the ‘origins’ of inequality.

This resurgence of interest in equality and a desire to quantify brought about a new focus on the application of econometrics, or measurements of economic variables, to archaeological data. For example, measuring Gini coefficients is an econometric method that characterizes the concentration of income or wealth within a population. Deriving Gini coefficients from a broad range of supposed proxies of income or wealth from past societies became a central component in a comparative effort to investigate disparities within a wide cross-section of different past societies. This work is described in *Ten Thousand Years of Inequality*, edited by Tim Kohler and Michael Smith (2017), who use the Gini coefficient to investigate long-term changes in house size disparities in different societies. While there remained doubt surrounding the volume’s data and methods (e.g. Oka et al. 2018), the book nonetheless stimulated interest in how inequality changed over very long periods

of time and how it manifested in different social contexts (e.g. Basri and Lawrence 2020; Bogaard et al. 2019). *Ten Thousand Years* also reinforced the claim that there were substantial differences between ancient economies limited by the availability of land versus those limited by the availability of labor (Bogaard et al. 2018), an important pattern in ancient inequalities that we will consider in more detail later in this book. For now, it is worth noting the flurry of interest that ensued as archaeology began, finally, to re-engage with contemporary economics. Now that we have flagged the detrimental effects the myth of elite determinism and the cult of heroic entrepreneurs has on archaeological thinking about the past, it is possible to build on archaeology's re-engagement with economics especially with heterodox approaches to inequality.

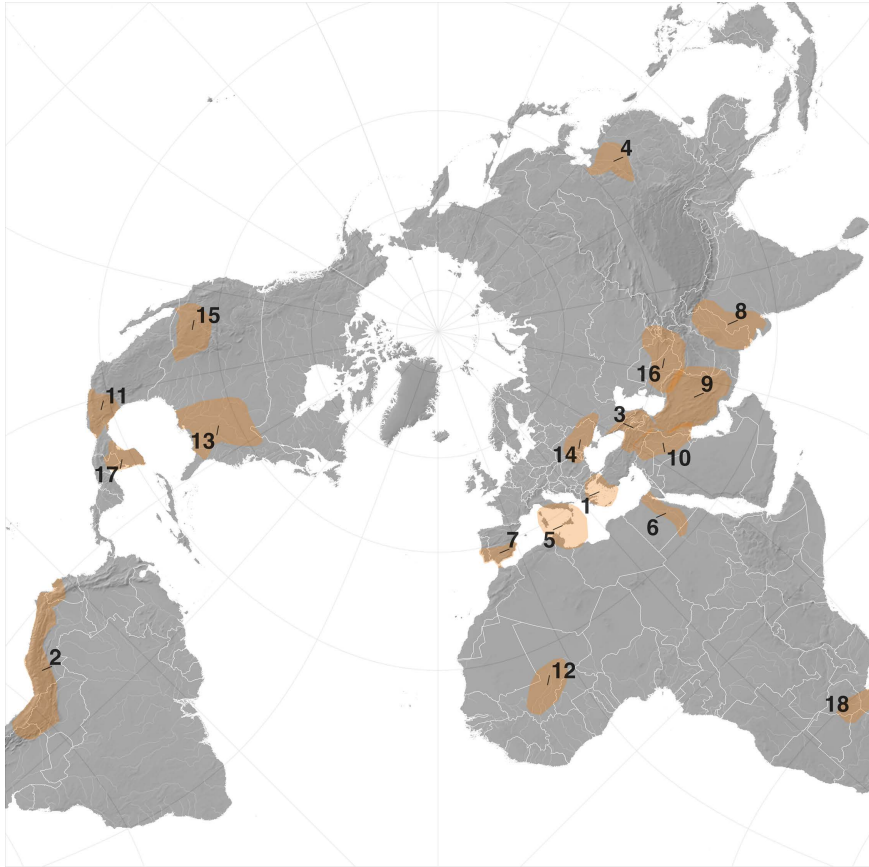
### **Fundamental concepts for a critical paleoeconomics**

By the 21st century, archaeologists had recovered far more evidence from past economies than had been available to Childe or Polanyi when they wrote their grand narratives. This book draws on this evidence to outline the long-term dynamics of economic growth and inequality without explanatory recourse to elite agency or entrepreneurial grit. We review evidence from a global range of societies (Figure 1.2), from the Neolithic to the Iron Age. In so doing, we develop a new grand narrative of economic change. However, to get the story started, we need to lay down a few clear definitions of the fundamental concepts we will use throughout this book.

First, what do we mean by 'economy'? Economies are the relational frameworks that humans create to access the resources they need to sustain and reproduce their societies. A human economy is what emerges from the social relations people establish to utilize labor in production and distribute the goods that are produced. Drawing on Marx's (1976) classic formulation, we see labor as the application of human energy to resources in tasks of production, an activity that uses resources that people must access within their environments. Production materializes labor and ascribes its products worth.<sup>1</sup> Labor creates value by rendering resources into things that are socially useful. All resources must be made useful through labor in order for a society to be able to reproduce itself in a particular form.

No two people can perform the same labor with the same resource at the same time. In other words, we must gain access to resources by interacting with other people—helping one another to get and retain access to what we think we need. Sometimes, this involves taking resources or goods from others or preventing access to particular resources by others. There are always divisions of labor in human societies. But, rather than focus on differences in individual capacities to perform work, it is more useful to analyze the division of labor according to broader

1 For instance, firewood is a real resource that can only be used to reproduce society after it has been made available to use through different kinds of labor (e.g. cutting it, collecting it, transporting it). Combustible bits of wood might exist naturally on a forest floor, but they are not valuable until labor has been applied to them.



*Figure 1.2* Map of the key regions and sites discussed in the book. 1 = Aegean, 2 = Andes, 3 = Caucasia, 4 = Central China, 5 = Central Mediterranean, 6 = Egypt, 7 = Iberia, 8 = Indus, 9 = Iran, 10 = Mesopotamia, 11 = Mexico, 12 = Middle Niger, 13 = Mississippi, 14 = Pontic Steppes, 15 = Southwest United States, 16 = Turkmenia, 17 = Yucatan (Maya), 18 = Zimbabwe

social categories. Variations in the division of labor tend to be patterned according to overarching socio-cultural categories, such as gender, ethnicity, age and class. At the same time, this value (i.e. the usable products of labor) generated within an economy exists in a state of distribution amongst people who perform different quantities and types of labor. Could a society exist where every individual had access to the fruits of their own labor and *only* the fruits of their own labor? In the abstract, perhaps, but in practice, probably not. Economies are made by societies, so there is seldom a one-to-one correspondence between the person who produces something and the person who has access to that which is produced. Asymmetry—which is *not* the same thing as hierarchy—is the default mode.

There is a tendency to imagine that the economy encompasses only a subset of activities; those that might be deemed more basic and essential to production. The further one gets away from this imagined baseline, the less ‘economic’ things are generally thought to be. For example, many evolutionary anthropologists argued that the ‘subsistence economy’ determined a society’s form (Harris 1968; Steward 1972), implicitly creating a hierarchy of economic activities. In practice, ‘subsistence economy’ means things that are needed for the maintenance of metabolic processes, such as calories, or the secondary materials that allow humans to obtain calories (e.g. hunting tools or plows). As the thinking goes, as one moves beyond the economic, one gets into the realm of the political. But such a hierarchy is built on an anachronistic fallacy. *Anything* that a society needs to reproduce itself has value, and therefore, combines finite resources, labor and distribution. Human societies are not reducible to metabolic processes. When we refer to social reproduction, we do not simply mean its metabolic maintenance as so much biomass. If a society requires stone tools and songs to provide social and biological needs, then flintknapping and singing are both essential economic activities, even if all that remains for archaeologists to recover from that economy are a few flint flakes. By extension, asking who knapped the stone is no more an economic question than asking who sang the songs. Like high-quality flint, competence in singing is finite.

Humans are not the only animals who engage with their environment to access resources. A pride of lions requires access to meat and water to reproduce. Like humans, lions form systems of distribution and reproduce a division of labor (e.g. where adult females engage in hunting) and a distribution of resources (e.g. where access to meat is based on a dominance hierarchy). But it is seldom worth studying non-human economies with an *economic* view, because their arrangements vary little across members of the species and change only at evolutionary timescales. The economies that humans create, by contrast, change along a range of much shorter timeframes. Lion economics—at least in the wild—are probably much the same today as they were a thousand years ago, 10 thousand years ago, or 100 thousand years ago. In stark contrast, human economies are highly variable and dynamic. They are shaped by many different processes—the rise of agriculture, urbanization, the formation of intercultural trade networks and the invention of capital—unfolding over decadal, centennial or even millennial timescales.

Economic activity is relational, not individual, so inequality is best thought of in terms of ‘access,’ rather than ‘ownership’ or ‘private property.’ Ownership implies relationships to resources that are intimately bound to modern capitalism; capitalist concepts of property assume owners have the right to dispose of their property in any way they see fit—up to and including its deliberate destruction. This is a historical peculiarity, however, not a universal rule, which is why we think ‘access’ is a better way of saying what we mean. It allows us to investigate the use of a resource without assuming a proprietorial relation in the modern sense.

The two most basic axes of variation in access to resources would seem to be: 1) the division of labor; and 2) the distribution of resources generated through such labor. Differentials in the distribution of value among people who materialize labor

and people who accumulate access to what is produced is the principal source of economic inequality in a society. Inequality is therefore a mismatch between who generates value by applying their labor to a resource and who can access the value created through that labor. Inequality is low when the value generated is mostly accessible to the people who performed the necessary labor, but inequality increases when value flows disproportionately away from the people who generated it.

In some societies, the mismatch between an individual's labor contribution and their access to resources is minimal. We argue that, in such societies, variations in wealth are so trivial that the term egalitarian is justified as a descriptor. Egalitarianism can emerge, be reproduced, enforced and sustained in various ways (e.g. Dueppen 2012; Fowles 2018; Leacock 1992). For example, in certain hunter-gatherer groups, the products of labor are generally made accessible to everyone, regardless of who performed the labor that produced it. For example, in some contexts, when a particularly successful hunter kills a large animal, they must share the meat with the entire community (e.g. Wiessner 2002). Failure to do so results in ridicule and a loss of status and prestige, or in some cases, even violent retribution. Here, egalitarianism is maintained through the equal distribution of resources since the division of labor itself is clearly not equal (Fowles 2018). This is not the only trajectory from which egalitarianism comes about. Many sedentary food-producing communities, those that include agricultural and pastoralism, operate so that each household group controls the products of its own labor. In many such societies, there are few socially sanctioned mechanisms for one household to lay claim to another's resources, a form of egalitarianism associated more with an equal division of labor, rather than the equal distribution of its products. This form of egalitarianism is critical to our arguments, as we will later argue that it characterizes two of the most significant upticks in economic growth known to archaeology.

### **Economic growth**

Economic growth is the rate of change in the total production per capita over a defined period. It can, of course, be positive, static or negative. Economists today typically try to measure a society's economic growth using quantitative metrics such as gross domestic product (GDP), a figure usually calculated from aggregating the monetary value of all economic action within a nation-state (as the default economic unit) for a particular time—usually, a year. Economic growth in narrow terms is simply the percentage change between one time period to another, such as annual differences in GDP. Modern governments employ substantial bureaucracies to calculate GDP and other measures of growth.

From listening to news reports on the economy, the average member of the public could be forgiven for thinking that the way economic growth is measured today is clear and settled. In fact, there are numerous debates within economics about the best measure of growth—and of economic production of value more generally (Bivar 2022; Mazzucato 2018). GDP is simply one, very imperfect metric. Beyond metrics, critics have pointed out that aspiring for infinite growth can only

be achieved at the expense of the ecologies upon which people depend (Raworth 2018). This has led calls for ‘degrowth’ or ‘post-growth’ economics, culminating in recent enquiries into how today’s nations can build economies that cease growing or even reduce growth, to keep within ecological limits (Kallis et al. 2012; Hickel et al. 2022; van den Bergh 2011). We do not enter into these debates here, but want to emphasize that the nature of growth in the present is not settled as an objectively measurable thing even today; rather, it is a slippery concept. Moreover, the moral value assigned to growth is highly contested: for neoliberal-inspired capitalists, it is good; for some green activists, it has come to be seen as bad; while, for those concerned with inequality, there is increasing recognition that it can be good or bad for different segments of the same society.

In this context, Piketty’s seminal *Capital in the Twenty-first Century* (2014) casts economic growth in a different light. His work is unusual (within the disciplinary context of economics) in its explicit focus on historical changes in the distribution of wealth. In contrast to both mainstream economists and proponents of degrowth, Piketty focused on understanding how and why wealth disparities had reached such unprecedented heights in the wake of the Great Recession. Together with colleagues, he assembled empirical data from as many Euro-American, capitalist economies for which he could find records, initially extending his analysis back to the late 1700s. He found that economic growth ( $g$ ) was one of two variables that, together, explained wealth divergence in his sample capitalist economies over the three centuries. The other was returns from capital ( $r$ ), which we will turn to in the next section and cover in great detail in Chapter 3. Briefly, Piketty found that inequality rises more rapidly when economic growth slows. As per annum income decreases, the share of wealth derived from capital returns increases. Conversely, higher economic growth is usually associated with little or no increase in inequality. Extending this model, we therefore suggest that 1) economic growth and capital returns are independent processes, with  $g$  occurring in contexts where  $r$  does not, and 2) sufficiently high economic growth can crowd out the effects of capital returns on economic inequality. Low-growth economies can, therefore, perversely, be highly beneficial to those who are already wealthy; while high-growth economies can be beneficial to those with relatively little wealth. This view raises stark challenges to established economic thinking and has, unsurprisingly, drawn some backlash (e.g. Morgan 2017). For our purposes, it is sufficient to draw on Piketty’s insight that growth is a key economic mechanism for understanding changes in inequality over a much longer period of human history.

An emphasis on monetary-based quantification has long discouraged archaeologists from thinking about economic growth in the past. We argue, however, that economic growth is a fundamental feature of all human economies. All societies produce value and do so at changing rates; it is simply that rather few of them spend much time measuring and remembering how their production or labor changes. Tracking economic growth across all types of human societies thus presents methodological challenges. Just as economists use monetary transactions as proxies for growth in modern contexts, archaeologists must identify physical remains that can act as proxies—quantifiable or not—for growth in the past.



In contrast to economic growth, archaeologists have long been comfortable with searching for proxies that can be used to infer past population sizes, even if the topic remains controversial. Most archaeologists use variations on house area or settlement extent as base multipliers to estimate populations in the past. But providing reliable absolute population estimates for particular settlements is challenging. Take Çatalhöyük, one of the world's most famous early population agglomerations. Estimates of population size vary greatly, ranging as high as 8,000 people, if most or all of its houses were densely occupied at the same time (e.g. Der and Issavi 2017). By contrast, a number of archaeologists, like Ian Kuijt (2000, 2018), hold that it is unrealistic to assume that all of the structures of a settlement would have been occupied at the same time, implying that sites like Çatalhöyük would have hosted a much smaller number of people. This book does not attempt to resolve these kinds of place-specific challenges, though we will take a closer look at these settlements in Chapter 2. For now, what is most important is that, absolute population numbers aside, sites like Çatalhöyük were unprecedented departures from other settlements with which they were contemporaneous. To overcome the danger of 'overspecification' (i.e. asserting estimates for population which can never be confirmed), some archaeologists have, instead, argued we should only look at relative change. This could include assessing the rate of change in house numbers, settlement sizes or using the summed probability distribution of large collections of archaeologically sampled radiocarbon dates (Crema 2022). Each of these methods can be used to suggest likely rates of growth or decline in population; they may also offer a robust way to think about reconstructing *economic* growth.

To be clear: economic growth is distinct from population growth. We might expect that total value production is partially correlated with total population—a large number of people will, in total, perform more labor or produce and circulate more things. But aggregate product (and, by implication, growth as a measure of its change) is also dependent on how much is produced per capita. This can be affected in many different ways: by idiosyncratic individual behavior; by technical accelerations on the same unit of human labor (e.g. by using machinery or animal traction to produce more); by demographic profile (e.g. by a variable number of working versus dependent individuals); and by spatial dynamics (i.e. growth in one region may be offset by contraction in another as a result of imports, piracy or taxation). This means that—at least, theoretically—economic growth could conceivably hold steady even as population increases—or increase independently of population—as more goods are produced and enter circulation.

Archaeologists risk engaging in circular logic if they infer economic and population growth using the same material proxies, even if settlement scaling theory has made much of the fact that larger—or rather, denser—populations tend to generate more things per capita than smaller—or less dense—populations (e.g. Ortman et al. 2016). It seems to us that many of the potential indicators that have been used in the past by archaeologists as proxies for *demographic* growth may be better conceived as proxies for *economic* growth. This includes trends in house sizes, house numbers, settlement extent, summed radiocarbon probability distributions or, more generally, the sheer quantity of material culture dating to particular periods. All of

these are direct indicators of human labor—the fact that they may also correlate to population size change is a secondary correlation and less clear-cut. Archaeological methods are built around reconstructing the contexts in which people expended their labor to make, use and discard things. Any activity that expends human labor contributes to economic growth, even if the things produced are temporary or do not leave archaeological evidence (e.g. ideas, songs, relationships). Unfortunately, while archaeology has the tools and data necessary to track trends in economic growth over the long term, it has only just begun experimenting with using them.

There is abundant evidence from which it is possible to study economic growth in past human economies. For example, because they often resist decay, the ruins of buildings provide a strong, archaeologically detectable signature of economic growth, especially large platforms or structures. At the same time, construction sequences reveal the expansion of settlements and the establishment of new ones. Indeed, increases in the density of buildings in a given space can reveal rises in the past rate of economic growth. Moreover, past changes in the rate of building construction are often identifiable at the landscape scale and can be detected using site location data. These data can be gathered through archaeological surveys of ancient settlements and includes both the areas of settlements and their distribution in space. High-growth contexts may appear as the foundation of many new settlements within a relatively brief interval of time.

The quantities of craft goods in archaeological assemblages can also reveal the rate at which past societies materialized labor. Craft goods contrast with buildings, of course, because they can be more easily distributed amongst different locations, while buildings are immobile once they have been produced. Changes in the intensity and diversity of craft production can attest to past rates of economic growth. Building on Childe's early work, archaeologists have long implied that economic specialization—an increase in the amount of time and resources individuals can dedicate to a specific production activity—is a defining proxy of an upward shift in economic growth associated with urbanization (Brumfiel and Earle 1989; Clark and Parry 1990; Costin 1991; e.g. Rice 1981; Vidale 1989). Past economic growth is therefore evident in the invention and proliferation of new kinds of crafts or as the appearance of new styles within existing craft traditions. Ideally, one could identify the total quantity of goods apparent at a particular site and plot variation over time; but such data requires intensive, high-quality excavations that are carried out over decades.

In Chapter 2, we argue that there is already sufficient archaeological evidence available to detect several unprecedented changes in economic growth. The first was around 10,000 years ago with the emergence of Neolithic megasites, and the second began around 5,000 years ago with the emergence of the first cities. Settlements associated with both periods were sites of population aggregation, and no doubt, the density of population was higher than in many contemporary or prior places in which human communities lived. But, the important point for us is that, in each case, there was also a very much higher level of value production (e.g. in the manufacture of material things), which is an unequivocal indicator for high

economic growth. Both megasites and cities emerged in a restricted range of environmental settings, those that offered access to a particularly generous but diverse range of ecological niches. Childe saw the emergence of cities as a revolutionary process, in which ruling classes took control of the means of production. But subsequent archaeological work has shown little evidence of such in early settlement agglomerations, whether megasites or the earliest cities, that would indicate the existence of separate ruling classes or any clear forms of hierarchy. In other words, the world's earliest high-growth economies were egalitarian.

In the *Dawn of Everything*, David Graeber and David Wengrow (2021: 276–327) contend that cities are first made in the imagination, built around political ideals and that we should, therefore, not be surprised that some cities could be broadly egalitarian in nature. One frustrating aspect of this argument is that Graeber and Wengrow offer no mechanism by which the material realities impinge on people's abilities to act politically—it is all a matter of will and negotiation. We agree that there is strong evidence of egalitarian cities in the past, but beyond that point, our view is rather different from Graeber and Wengrow's. We posit that the world's first cities were *inherently* egalitarian. The reason for this is that their very appearance in the record is evidence of high economic growth—huge amounts of labor devoted to constructing and living in a restricted area. We hold that Piketty's theory works in these ancient contexts as well in the historical settings in which he built his model; higher growth is more likely to encourage broader distribution of wealth. Thus, Piketty provides us with a material and economic mechanism for why some societies and settlements may be more egalitarian than others. In the contexts where evidence for rapid economic growth is most abundant, evidence for a ruling elite is absent or muted.

## Capital

If high economic growth occurred independently of substantial wealth disparities, how are we to explain the emergence of (often stark) inequalities? After all, few would disagree that many of today's economies are extremely unequal. *Something* must have changed in the millennia separating the emergence of the high-growth economies and the contemporary moment. The answer, we argue, rests on the other side of Piketty's theory; namely, on the relationship between growth and returns on capital. The nature of capital and its relationship to growth provides an economic mechanism which explains periods of increased inequality in the past.

Before we focus on capital and Piketty's model, we must address some intellectual red herrings with regards to the origins of inequality. An earlier generation of archaeologists assumed there was little in the way of serious inequality before the emergence of cities and even less before the advent of farming. More recently, some archaeologists have argued that inequality is, instead, ubiquitous, a product of human nature, and not the product of specific economic or political transformations (e.g. Moreau 2020). This approach seems, implicitly, to take the view that the distant past was little more than a smaller-scale version of the present. An oft-cited example of pre-Neolithic inequality are the Upper Paleolithic burials at the site of Sungir,

where a single adult individual and two juveniles were buried with lots of beads and other extraordinary objects (e.g. Trinkaus and Buzhilova 2018). Both this argument and Sungir appear in the *Dawn of Everything* as well, where such pre-Neolithic burials are described as ‘princely’ (Graeber and Wengrow 2021: 78–119) and are presented as evidence that inequality has always been with us.

We could not disagree more. Evidence for wealth inequality before the Neolithic is, in all known cases, trivial. Moreover, we find it worrying that some archaeologists are tempted to ignore the fundamental material and spatial transformations that the archaeological record clearly documents—especially the comparative scale of population, the density of settlement and the sheer quantity of physical objects and built spaces after the Paleolithic. A few well-known Paleolithic burials may have marked out some individuals for special treatment, but these were highly exceptional, and it is dangerous to draw general conclusions about humanity from such rarities. At the same time, the significance of the labor invested in the Sungir burials is often exaggerated. The creation of the beads associated with the bodies would have amounted to only a few thousand person-hours (Pettitt 2006). One person, if sufficiently motivated, could thus have made all the beads found at Sungir over a few years. Obviously, making so many beads was a lot of work from the perspective of one person, but it does not point to anything resembling relations between different classes. Whereas a few Paleolithic communities might have interred people with extra ornaments and tools, later communities began investing the labor of thousands in a single burial. Some of these include *entire lifetimes* of potential labor deposited in a single tomb through the sacrifice of servants or retainers. Pepy’s pyramid in ancient Egypt effectively invested the labor of the entire society into the death of a single individual (e.g. Wenke 2009: 2), while hundreds of servants were interred along with members of the ruling dynasty in the Royal Tombs of Ur (e.g. Baadsgaard et al. 2011).

So, what is it that Old Kingdom Egypt had that the Upper Paleolithic did not? The answer lies with capital. For the 18th to 20th centuries AD, Piketty argued that wealth disparities increased because, in capitalist economies, the rate of returns on capital,  $r$ , have always exceeded the rate of economic growth,  $g$ . He summarized this relationship using the formula:  $r > g$  (Piketty 2014). When this ratio shifts—if returns increase or growth falls—then increasing wealth inequality is the expected result. We argue that this insight into capital has important consequences that extend far into the past.

But what exactly is capital? Piketty himself is not entirely clear on this point, which is one of the aspects of his work that has been subject to critiques from other economists (Ndhlovu 2015). Here, we find the arguments that economic anthropologist Eric Wolf (1982) advanced in his classic book, *Europe and the People without History*, particularly useful. Capital, like all economic phenomena, is relational—it is not an assemblage of tangible or intangible things, *per se*—not gold or houses or songs—but legal or moral *claims* on things produced by others. Capital consists of claims on the labor of others that are backed by ideological, political, legal and cultural mechanisms. Returns on capital come about when these claims result in the value produced by one person are disproportionately distributed

to another person. Capital encompasses all claims on labor output—past, present and future. After all, if labor is the source of value and wealth represents concentrations of value, then those who collect returns can effectively capture labor that they do not, themselves, perform. When we say, following Piketty, that the rate of returns on capital increases when economic growth is low, this means that, under low-growth economic conditions, fewer people are making larger claims on others' labor.

Of course, dependence on the labor of others is universal—in all societies there are some members who are net contributors and others who are net receivers of collective labor. The young or infirm may not be subject to the same demands as fit adults; working and caring duties and the direction of dependence may also be based on a variety of arbitrary divisions (e.g. gender, kinship groupings). It is practically impossible to imagine a human society without some inter-dependence on the labor of others. But a human propensity to devote labor to others can be subverted if scaled in ways that make the asymmetry of such relations greater and more permanent. The ability to, in effect, capture the labor of others must be supported by a complex series of ideological, political, legal and cultural mechanisms. Capital is not, therefore, material, and we should avoid confusing it with wealth.

These points cannot be overemphasized. In our view (and that of Eric Wolf), capital emphatically is not stuff or land improvements or factories or ideas or wealth. Nor is it a series of embodied advantages, such as personal knowledge or the number of people someone knows. These could all be important dimensions of and indicators for wealth inequality, but they are not what Piketty stressed, and they are not usefully discussed as capital. Capital is a *claim on something produced through someone else's labor*. When one talks about investing capital, as if it really were a thing, this language is inherently obfuscatory. To 'invest capital' in an enterprise is, in reality, an attempt to expand one's claims on others' future labor products. Economic growth is an increase in stuff, so growth does not equal more capital. Indeed, the claims on wealth can increase even as the total amount of wealth is reduced. Capital is therefore fundamentally distinct from economic growth and has a very different origin story.

While economic growth is a human universal, we are skeptical that the same can be said of capital. Rules surrounding who can appropriate the labor from others differ widely from one society to another. If, according to our definition, capital does precede modern capitalism, we are undoubtedly left with many questions. How do we detect or measure capital in the archaeological record? When and where did shifts in the relationship between returns on capital and growth first make a significant impact on human societies? In Chapter 3, we identify citadels (as opposed to cities) as the first places in which this dynamic can be identified. Citadels were compact, palatial centers where small numbers of political specialists supported the efforts of their occupants to make claims on a widening pool of the labor of others and then protect those claims through violence, broadly conceived. Archaeologists have long wrestled with fitting such settlements into evolutionary development sequences, sometimes calling them proto-urban. However,

we see the first citadels as a category of settlement entirely distinct from the first cities. They were built specifically to channel the production of others to a small elite. In the archaeological record, these sites are much more numerous than the first cities or megasites, appearing in a relatively constrained range of marginal environments.

As Piketty emphasizes in his follow-up book, *Capital and Ideology*, inequality regimes are maintained by ideology (Piketty 2020); that is, rules about who can access things other people produce. Ideologies allow the products of labor to accrue to certain groups and not others. Citadel societies were conspicuously hierarchical affairs; machines, in effect, for aggrandizing a select few individuals or families. Early high-growth economies were unusual, a feature that constrained them to particular environmental settings. But citadels, being dependent on capital, could arise wherever growth could be kept low, even as some (small) surplus could be captured. Citadels thus emerge in totally different spatial and ecological contexts to cities as the product of suppressed growth at the margins of highly productive social ecologies. Ultimately, most citadels were abandoned. But, in some cases, citadels emerged or imposed themselves upon cities—what we would call ‘citadelized cities’ (in contrast to cities without citadels).

We do not attempt to explain in detail how exactly cities became citadelized nor why cities were later founded in a citadel mode. Instead, we turn to the certain aspects of the relationship between economics and politics—what might be called economic governance—and the ways in which shifts in the technological means of measurement, the position of certain specialized groups, and finally, the convergence of legal institutions of monopolizing the labor of others, gave rise to shifts in wealth disparities within Bronze and Iron Age societies.

### **Money, debt and trade**

We understand money as a technology of economic governance, a view we owe to David Graeber. Central to his work on *Debt: the First Five Thousand Years* (Graeber 2011) was the observation that there was an incorrect and misleading narrative at the heart of mainstream economics: that money was invented to replace barter. There is no empirical foundation to this claim. Despite the repeated dismissal of barter primacy by anthropologists and historians with actual data from non-currency economies (e.g. Dalton 1982; Humphrey 1985), the idea that money somehow evolved from barter systems remains deeply entrenched among economists. In fact, barter has only ever been documented in the spaces around monetary economies—or in the wake of their collapse (Graeber 2011: 40). Beyond barter, it is clear from the texts of ancient Mesopotamia that complex credit money predates the first coinage by many centuries. As Graeber pointed out so elegantly in *Debt*, credit and debt are actually human universals (cf. Peebles 2010). Some heterodox schools of economics, particularly modern monetary theory (MMT), explicitly accept the primacy of credit. Indeed, money is just a particular form of credit arrangement, which “was no more ever ‘invented’ than music or mathematics or jewelry” (Graeber 2011: 76).

One related problem with the myth of barter is that it emphasizes the things being exchanged during transactions, over and above the labor debts or social relations via which exchange takes place. It assumes that at the base of human economics are two rational, ahistorical and independent agents whose relationship starts and ends with the barter transaction in hand. Such relations can only exist with strangers, and perhaps even then, only rarely. But coinage (a very specific form of money) is indeed a technology that helps to govern the economic relationships between relative strangers—a topic we explore in Chapter 6. In these situations, perhaps increasing in frequency and salience in urban or highly mobile social contexts, issues around trust and redemption of debts become necessary to manage more systematically. Archaeologically, there is plentiful evidence for economic governance in the past, some of it—seals and tokens in West Asia—dates back into the Neolithic from megasites, such as Çatalhöyük, mentioned earlier. We argue that these technologies were designed to govern labor via the materialization of debts—effectively, they were a form of money. By their circulation and requirement to be redeemed, valueless tokens could enable transfers of labor debts—and in effect, facilitate economic growth—beyond the confines of close kin or neighborly relations.

A monetary transformation came about during the 3rd millennium BC in Mesopotamia and Egypt. Merchants involved in the international transport of metals began to use balance weights to measure their goods in objective, reproducible ways. As cuneiform texts attest, units of these measures of metal (particularly conventionalized weights of silver) became a means of pricing all other commercial transactions; silver thus became what may be the world's first bullion currency. Despite the assumption that has long been made about the close relationship between the state and metrology, the current evidence suggests that early weighing systems were created independently of political authority and were maintained through self-regulation. As we learn from Witold Kula's (1986) *Measures and Men*, metrology is not a neutral, objective field of human activity. The change in metrological mode had profound effects on the potential reach of economic control the new elites of citadelized Mesopotamia could actually achieve because value was placed in an objective and difficult to procure foreign medium, rather than being under the control of an issuing political authority (either hierarchical or otherwise). Nonetheless, there is clear evidence that, toward the end of the 3rd millennium BC, elites attempted to seize control of the means to quantify economic transactions by establishing unified weights and measures of all sorts. By controlling the apparatus of economic governance, some elites hoped to place more claims on human labor.

That this new metrological (and monetary) mode came about in West Asia at a time of growing trade between polities over ever-larger distances and with ever-larger quantities cannot be coincidental. Nonetheless, the inheritance of substantivism and neoevolutionism, hollowed out by creeping neoliberalism, left archaeologists poorly equipped to investigate the direction of causality between trade and wealth inequality. One way to unlock the relationship between trade and inequality is to focus on the agents of trade themselves. Thus, in Chapter 5, we narrow the spatial focus of our narrative onto a wealthy class of merchants that

emerged in the late 3rd and 2nd millennia BC in West Asia. These groups created wealth via long-distance trade networks that moved ‘raw’ materials and finished goods across political and cultural borders. Over long periods, merchant classes achieved a phase shift in the scale of wealth compared to the general populace and their pre-monetary predecessors.

In Chapter 5, drawing especially on Mazzucato’s work, we find that the long-distance merchants of the Bronze Age were always bolstered or curtailed by the state. Sometimes, in the case of early 2nd millennium Old Assyrian networks, for all intents and purposes, merchants *were* the state. Archives of cuneiform texts provide an unparalleled source of information about the activities of the long-distance merchant (Sumerian: *dam-gàr*; Akkadian: *tamkārum*). We examine three case studies, that of the Ur III Period, Old Assyrian Period and Late Bronze Age (LBA) Ugarit, which reveal a specialized and socially mobile class who built their own wealth while contributing to the financial gains of the dynastic elite. In the Ur III period, for example, merchants took on the palace and temples as institutional clients and generated wealth, not only through the importation of vital resources such as copper, but were also responsible for moving money between the general populace and institutions. They were able to pass down significant wealth to the next generation, solidifying the prestige of particular families and acting as agents in wider state-building projects across ancient Mesopotamia. In the later Old Assyrian case, however, the merchant communities effectively acted as the central authorities, making decisions for the community at large. The wealthiest merchant families could own several houses, both in Assur and abroad, and moved vast amounts of wealth, in the form of textiles, tin and silver across great distances. Even the prominent merchants of LBA Ugarit, with their extensive connections across the eastern Mediterranean and inland western Asia, were never truly private economic agents. By discussing the embeddedness of merchants, we do not argue that we should revert back to the older thinking about ‘primitive economies,’ devoid of capitalistic or entrepreneurial elements. It is, rather, that the idea of the modern entrepreneur, free from state control, is a myth—a myth that has been projected back onto the ancient past.

### **Millionaires and billionaires**

In Chapter 5, we argue that some of these early merchants could be thought of as the world’s first ‘millionaires.’ We use this term figuratively—the world’s premier example of long-distance exchange specialists most likely did not measure their units of wealth in the millions. The point is that they were unimaginably rich compared to most of the other people of their day. These figures leveraged their wealth to gain positions of influence, although the character of their political power differed from one polity to the next. In LBA Ugarit, the wealthiest merchants have been compared to modern-day oligarchs—their personal networks including the royal family and their influence seeping into major political decisions. There are, of course, also some indications that the dynastic elites attempted to curtail the wealth and influence of merchants. This tension, with merchants as both partners of



the dynastic elites as well as potential rivals, sometimes contributed to ambivalent and hostile societal attitudes toward the mercantile class (as evidenced in textual sources). As was the case with the upticks in economic growth we flagged earlier, there was a meaningful difference between the way the world's first millionaires assembled wealth and other kinds of labor specialization.

The process of expanding inequality took a further turn during the 1st millennium BC when the rich became able to claim the labor of a substantially larger portion of growing populations. It is thus in Chapter 6 that we turn to the origins of the 'billionaire'—again, a term we use figuratively to indicate an unprecedented scalar leap in the degree of inequality that was possible. As previously discussed, credit long predates coinage (Graeber 2011: 38). However, materializing value in coins served a range of very particular purposes, combining the qualities of bullion and sovereign forms of currency. In the early Iron Age of Eurasia, many hierarchical polities began minting coinage from metal, first using electrum, and then later, gold, silver and bronze. This shift was a major and often overlooked economic discontinuity between Eurasia's Bronze and Iron Ages, with serious repercussions that we explore in Chapter 6.

Besides coinage, we believe a number of other factors were important in facilitating the rise of billionaires. The end of the 1st millennium BC saw an unprecedented expansion of slavery—a process by which a person (in the Roman case, a citizen) came to legally claim the right to the entirety of another person's labor. Densifying settlements alongside the widespread expansion of the practice of urban rent provided yet another stream by which a small proportion of the population could extract, indirectly, substantial labor value from the masses. We justify the term 'billionaires' for the Iron Age super-rich primarily because the magnitude of their wealth was so much larger than can be documented for earlier elites, to the extent that they could match or exceed state expenditures. Indeed, we could characterize the shift to one in which the state and cultural system sanctified the monopolization of property rights for individuals to an extreme degree—an unprecedented advance in the scale of capital. What is particularly surprising—and what we try to demonstrate with data drawn from different economic sources—is that these top-to-bottom wealth differentials remain remarkably similar in magnitude today. The cases discussed in Chapter 6 therefore represent the world's first oligarchic societies, which, in many ways, laid the foundations for the modern world.

### **A note on chronological and technical terms**

Archaeologists are deeply concerned with chronologies. In this book, we use the specific local chronological terms where they are necessary to understand the particular changes within a region, while also citing absolute dates (i.e. years AD/BC) to afford some clarity to non-specialist readers. But we also deploy a looser terminology around three global super-periods: the Neolithic, the Bronze Age and the Iron Age (Figure 1.3). These terms are used to indicate broad types of economies and their approximate first introduction in different parts of the world, which are often not synchronized for different regions.

Global Periods	SW Asia	Egypt	Mediterranean	S Asia	China	S Africa	Mesoamerica	Andes
Iron Age	2000AD	Ottoman Empire	Ottoman Empire	Colonial	Qing	Colonial	Colonial	Colonial
	1000AD		Byzantine Empire		Tang	Zimbabwean	Post-Classical	Late Horizon (Inca)
	0	Sassanian					Classic	Late Intermediate
Bronze Age		Parthian	Roman Empire	Mauryan	Han			Early Intermediate
		Achaemenid	Hellenistic				Formative	Early Horizon
		Neo Assyrian / Babylonian	Punic + Greek		Zhou			
	1000BC	Old Assyrian / Babylonian	New Kingdom		Shang			
	2000BC		Middle Kingdom	Minoan	Erlitou			Initial
Neolithic		Akkadian	Old Kingdom	Late Urban	Shimao			
		Early Dynastic		Early Urban / Indus	Longshan			Late Preceramic
	3000BC	Late Uruk						
	Uruk	Predynastic			Dawenkou		Archaic	
					Yangshao	Pastoral Neolithic		
	Ubaid							
	Halaf							
			Early Neolithic	Early Neolithic				
	PPNB				Nanzhuangtou			
	PPNA							

Figure 1.3 Summary table of all chronological periods discussed in the book.

To summarize what each of these means: the Neolithic is when farming and sedentary lifestyles first make an impact on human economies; the Bronze Age is when the first cities appear; and the Iron Age is the period in which we see a constellation of new factors, particularly coinage, urban rents and large-scale slave economies. We want to emphasize that we do not see these as unidirectional, normative or inevitable (i.e. teleological) pathways. Rather, we use them more to locate, chronologically, the physical direction of historical change as the world became ever more inter-locking through trade and shared social, political or economic values over some 9,000 years.

We must also stress that, within local chronologies, each of these global terms may also have very specific, associated absolute dates which may not always synchronize. By way of example, the Uruk period is split between Early and Late, which, in local, chronological terms are considered the Late Chalcolithic and Early Bronze Ages, respectively, though we consider both to be globally ‘Bronze Age’ in

character. Similarly, in the Mediterranean, archaeologists (and classical historians) tend to stop using the term ‘Iron Age’ from the Greek Archaic period onwards (i.e. after we find substantial textual evidence). However, the use of writing did not fundamentally change the nature of the economy at that time, and we therefore characterize the subsequent Hellenistic and Roman periods as ‘Iron Age’ in nature. No doubt, some will criticize us for using such broad, semi-chronological terms in this fashion. But we think a little simplification is necessary to be able to compare across regions, to point out economic commonalities and to make our argument more legible to non-archaeologists. It is also worth pointing out that, in many cases, these terms actually allow for more nuanced interpretations. Theories of urbanism often present it as a singular phenomenon or draw sharp contrasts between ‘ancient’ and ‘modern’ cities. By contrasting Iron Age cities with Bronze Age cities, we are actually arguing for greater complexity in how ancient urbanism is conceived.

We also want to briefly discuss our usage of the term ‘the state.’ Archaeologists or anthropologists who see the state as a remnant neoevolutionary category have implicitly lumped citadels, cities and citadelized cities together—Mycenae, Uruk or Taosi are therefore presented as incarnations of the same evolutionary process, despite their very different forms. In this view, phenomena like the Neolithic megasites can only be seen as failed proto-states. We argue, instead, that there is no fixed evolutionary relationship between the different kinds of settlements: megasites, cities, citadels or citadelized cities. Megasites did not turn into cities nor into citadels. They just fell apart (eventually). Cities did not grow out of citadels either. Cities did sometimes end up being reorganized or occupied by citadels, but not in every case, and not necessarily permanently. Throughout this book, we have therefore tried to avoid excessive references to the state, as we broadly agree with Graeber and Wengrow’s arguments for why the term can be analytically obstructive (2021: 359–440). What all forms of settlement did have was governance, institutions and rules that facilitated collective decision-making and actions. Governance is a human universal and becomes more important—or at least has scaled-up effects—as larger populations interact. This was as true in the Neolithic as it is in the nations of the contemporary era. But the institutions of governance can develop in different directions, and technologies of governance can be captured for purposes for which they were not originally invented. Governance is found in all societies, but beginning with our discussion of metrological unification in Chapters 4 and continuing through Chapter 6, scholarship on governance becomes subsumed by references to the state. Our aim is to highlight points of commonality and difference in the political structuring of economies, rather than get too caught up in what we call them.

### **A critical paleo-economics**

The new economic thinking that has emerged in the wake of the Great Recession poses questions that can only be addressed with archaeological data. The

assumption that the elite are responsible for economic prosperity—and that they are entitled to the greater share of its fruits due to their entrepreneurial drive—is deeply ingrained in both the academy and public discourses. The preponderance of archaeological data, however, reveals that elites are not societies' most important architects, and adhering to theories that operate from such an assumption hinders our understanding of past economies.

This book aims to strengthen archaeology's engagement with contemporary economics, which, we believe, yields new ways to think about growing archaeological datasets. What if those who reside at the top echelons of society—the rich, in particular—are not the architects of its growth and prosperity? What if prosperity was not something bestowed from above, but instead, emergent from relationships between people and their ecologies? These questions challenge deeply entrenched ideas about human economies, and addressing them raises challenges that resonate across disciplines. In the chapters that follow, we present a series of archaeological narratives on cities, citadels, measurement, merchants and billionaires, inspired by these new economic perspectives and by current archaeological evidence.

## 2 Cities

### Archaeology and egalitarian urbanism

For archaeologists, cities have long been defined by inequality. Childe's idea of the 'Urban Revolution' established an enduring, but problematic, link between urbanism and the ruling classes. In the first cities, according to Childe, every "primary producer paid over the tiny surplus he could wring from the soil . . . as tithe or tax to an imaginary deity or divine king who thus concentrated the surplus. Without this concentration, owing to the low productivity of the rural economy, no effective capital would have been available" (Childe 1950: 11–12). In other words, the distinction between the class who produces the surplus and the class that lives off said surplus is what makes city life possible. Childe imagined all non-farmers to have worked under the direction of priests and kings, or at least, the bureaucrats in their employ. On this last point, he was quite explicit: "all those not engaged in food production were of course supported in the first instance by the surplus in temple or royal granaries and were thus dependent on temple and court" (Childe 1950: 12). The Childean city is therefore entirely reliant on its ruling class, who concentrated surpluses and used them to create the material fabric of urban life.

Childe's writings about urbanism still cast a long shadow over archaeological thinking. Even though there are many critiques of his arguments, his basic ideas remain remarkably influential. For instance, writing half a century later, it was still possible for Bruce Trigger (2003: 121) to assert, "Whatever else their function, cities were places where the upper classes of early civilizations lived, along with most people who did not produce food." That said, many archaeologists—especially those who are critical of neoevolutionism or who engage with collective action theory—have argued that the archaeological record reveals various 'alternative' forms of ancient urbanism, in which no Childean ruling class can be found.

One of the most important counterarguments to the Childean model is derived from the ancient urban center of Jenné-jeno in West Africa, a site that Roderick McIntosh (2005) has provocatively characterized as a 'city without a citadel.' We find this terminology extremely useful and adopt it in our discussions of urbanism that follow. McIntosh (2005: 10) classifies a citadel as a 'seat of coercive power,' a material proxy for the king and his attendant administrative and military apparatus. Jenné-jeno is only one such example, however. There are further examples of ancient cities that lacked citadels, many of which, we argue here, were conspicuously egalitarian. For instance, one of us has argued that the Bronze Age cities

of the Indus civilization in South Asia—one of Childe’s original case studies—lack any convincing evidence of a ruling class or even significant socioeconomic stratification (Green 2021). Despite more than a century of archaeological study, Indus sites have yielded no ostentatious tombs, palaces or aggrandizing art, and the amenities and elaborate craft objects were evenly distributed amongst everyday households. They were egalitarian cities. But egalitarian cities do not appear to have been limited to Eurasia. Linda Nicholas and Gary Feinman (2022) have, for example, noted the very limited evidence for economic inequality at Monte Albán, one of the largest settlements to emerge in the Valley of Oaxaca during the Formative period.

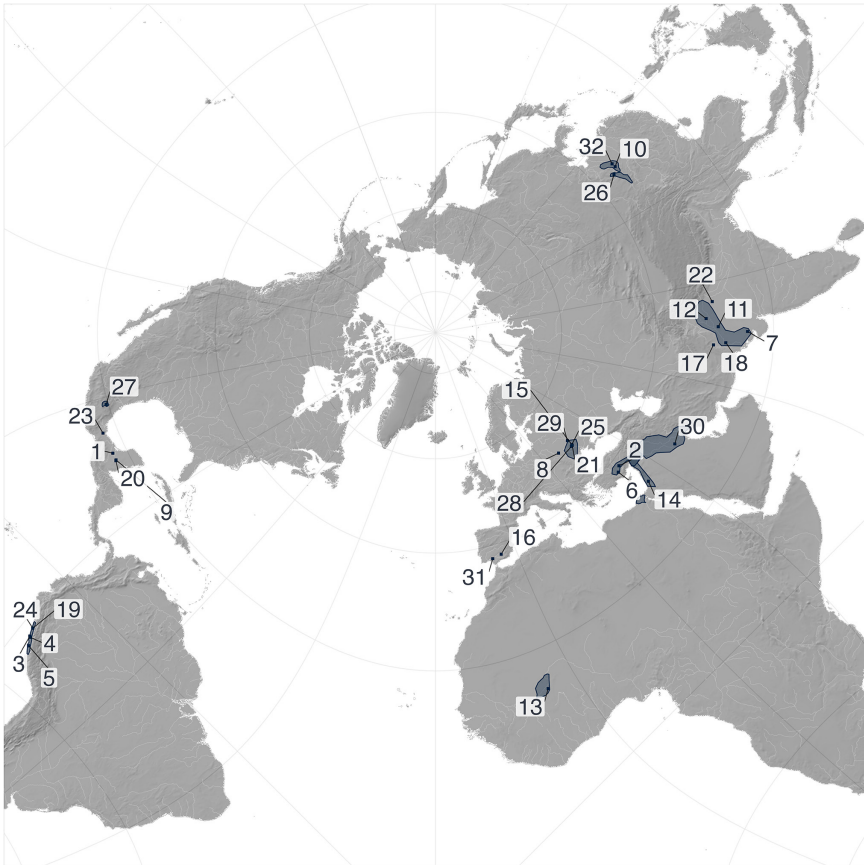
Despite generally agreeing with arguments that challenge the universality of the Childean city, we think it is vital to press further. In this chapter, we argue that there is, in fact, nothing atypical about cities without citadels. Egalitarian cities should not be seen as ‘alternatives’ (e.g. Fargher and Espinoza 2016) or ‘anomalous’ (e.g. Raja and Sindbæk 2022). Most—if not all—ancient cities—especially those that were the first to appear in their respective regions—were remarkably egalitarian and often remained that way for centuries. This claim is likely to strike many readers as controversial; but, as a discipline, archaeology is at an empirical tipping point. So much new archaeological data about the world’s first urban economies has recently become available that it is clear that old assumptions can no longer withstand sustained scrutiny. It is our contention that egalitarian urbanism was the norm throughout the ancient world, not an alternative to the citadel cities imagined by Childe. Of course, if we accept that egalitarian cities were far from rare in the ancient world, we must also confront the inadequacy of our traditional theories of urbanism. If egalitarian cities were once widespread, was there something about them that actually inhibited the emergence of stark socioeconomic disparities?

In what follows, we argue that the evidence that archaeologists typically use to identify the world’s first cities is actually a proxy for high economic growth—and this phenomenon of rapid economic expansion is vital to making sense of the egalitarian character of such settlements. To help explain why most early cities were not, in fact, typified by inequality, we draw on the insights into economic growth and capital from Thomas Piketty that we outlined in Chapter 1. Piketty shows that high economic growth suppressed the development of inequality during the last three centuries by effecting a relative squeeze on the returns from capital (i.e. claims made on others’ labor). Essentially, we argue that high economic growth had the same effect in more remote periods as well. The world’s first cities, which by their nature were high-growth economies, should thus be expected to display little evidence for inequality—both in absolute terms and relative to their demographic scale. By focusing on processes of economic growth and its material manifestations, we believe archaeology can move on from tired definitional debates over what constitutes a city and whether particular sites should be discussed as urban, proto-urban or given some other label. We will also explore how the remarkable economic growth associated with the first cities was predicated on an increase in the productive potential of particular socio-ecological contexts; crucibles of early urbanism that formed in multiple times and places. However, the

first cities were not the oldest societies that were characterized by rapid economic growth and sustained egalitarianism, and so, they are not where our story begins. Instead, let us start with a discussion of their Neolithic predecessors (Figure 2.1).

### Neolithic megasites

Thousands of years before the emergence of the world's first cities, a number of early farming settlements appear to have attained conspicuously large sizes, while remaining decidedly egalitarian throughout their entire existences.



*Figure 2.1* Map of global distribution of Neolithic megasites and egalitarian cities. 1 = Aguada Fénix, 2 = Aşıklı Höyük, 3 = Aspero, 4 = Caral, 5 = Cardal, 6 = Çatalhöyük, 7 = Dholavira, 8 = Dobrovody, 9 = El Mirador, 10 = Eritou, 11 = Ganweriwala, 12 = Harappa, 13 = Jenné-Jeno, 14 = Jericho, 15 = Maidenetske, 16 = Marroquíes, 17 = Mehrgarh, 18 = Mohenjo-daro, 19 = Mojeque, 20 = Nakbe, 21 = Nebelivka, 22 = Rakhigarhi, 23 = San Lorenzo, 24 = Séchin Alto, 25 = Taljanky, 26 = Taosi, 27 = Teotihuacan, 28 = Tomashivka, 29 = Trypillia, 30 = Uruk, 31 = Valencina, 32 = Zhengzhou

Obvious examples include the intensively studied Pre-Pottery Neolithic (PPN) sites of Çatalhöyük in Anatolia, or ‘Ain Ghazal in the southern Levant. Additional prominent examples include the Trypillia settlements distributed throughout what are now Ukraine, Moldova and Romania (which, in the local chronological frameworks, straddle the Neolithic–Chalcolithic boundary). These settlements were unusually large, with estimated populations running into the low thousands. And yet, they were mostly made up of houses, all fairly similar in size and layout, with few differences in material culture (or at least differences that might point to variations in wealth or status). There is much debate as to what to call these settlements. The most commonly-used term is ‘megasite’ (Rollefson 1989; Simmons 2010), whereas others insist we should just refer to them as cities (Gaydarska 2020).

These megasites are, from a comparative perspective, Neolithic societies—a term that originally referenced the use of ground-stone tools but has since evolved to encompass a range of social and economic transformations that are associated with the shift to agriculture. The controversy over what to call the megasites is a direct consequence of archaeology’s Childean intellectual inheritance. The empirical materials available to Childe were vastly impoverished compared to what archaeologists have at their disposal today. As far as Childe knew, in “prehistoric Europe the largest Neolithic village yet known, Barkaer in Jutland, comprised 52 small, one-room dwellings,” a fact which he attributed to the inherent “technical limitations” (Childe 1950: 6) of Neolithic economies. Childe’s story of Neolithic Revolution and Urban Revolution, then, was built on the assumption that it was effectively *impossible* for a Neolithic settlement to exceed more than a few hundred people. But when you consider that the Trypillia megasite of Maidanetske (in modern Ukraine) had at least 2,970 houses (Müller et al. 2016), it is clear that Childe’s picture of the European Neolithic reflected a very different archaeological record than the one we have now. The reason why we struggle to find an appropriate name for the megasites is that they fail to conform either to the Childean Neolithic village (i.e. a few hundred people living in an agrarian hamlet) or the Childean city (i.e. a metropolis with literate kings and priests residing in public, monumental structures). For the sake of following established conventions, we will continue to use the term ‘megasite,’ but we also emphasize that what is important about these communities is that they combine evidence of conspicuous egalitarianism with relatively rapid economic growth, despite also having high population densities. Clearly, Neolithic economies were not inherently incompatible with the scale of settlement evidenced by the Eurasian megasites.

The earliest evidence of food production occurs in the regions—such as Anatolia and the Levant—where the wild progenitors of early domesticated plants and animals resided (e.g. winter cereals, sheep, goats, cattle) (e.g. Brown et al. 2009; Zeder 2011). Neolithic economies incorporated many plants and animals, with a novel focus on species whose reproduction could be controlled (e.g. Fuller 2006; Meadow 1998). Millets were particularly important in Eurasia (e.g. Hunt et al. 2008; Laugier et al. 2022; Madella and Fuller 2006; Petrie and Bates 2017; Savard et al. 2006; Weber 1999), as they require limited water and thus dramatically



expanded the range of potential cropping and fodder opportunities for early food producers. Tropical plants played a greater role in the food-producing economies that emerged in the Americas (Piperno 2011; Watling et al. 2018). Staple crops such as maize, squashes, gourds, beans and manioc have their wild progenitors in both Central and South America. Interestingly, some of the earliest domesticated plants in the Americas were not consumed as food. Rather, crops such as bottle gourds and cotton greatly increased the productivity of fishing and foraging (e.g. Burger 1992). The key point is that Neolithization is less a single phenomenon than a series of comparable transformations that nonetheless exhibit considerable variation. Although some archaeologists have argued that the concept should be abandoned entirely (e.g. Finlayson 2013), we take the view that it remains a useful framework for making sense of humanity's deep past.

Neolithic communities typically increased the productivity of environments that had been relatively marginal to their foraging predecessors. For instance, the alluvial plains of Mesopotamia seem to have become considerably more productive once the Anatolian Neolithic package was established there. Similarly, a grassland region will generally be able to support far higher levels of economic growth following the introduction of domesticated livestock. Thus, relative marginality or productivity are not inherent characteristics of any given environment but emerge in relation to a particular human economy. This is not just true in comparing Neolithic versus hunter-gatherer contexts but pertains to all possible economic situations. A desert that was once sparsely populated can, if rich in crude oil, become a focal point for high economic growth within an industrial globalized economy built on the extraction of fossil fuels. Put another way, environments are not productive in themselves; instead, particular human relationships with an environment are productive.

It is worth recalling that building construction, especially when it occurs on an unprecedented scale, is a telltale sign of an increase in economic growth. Of course, we acknowledge that it is often difficult to discern from building plans alone whether we are detecting an increase in the number of people or an increase in the amount of building activity per person. As we argued in Chapter 1, it can also be a challenge to distinguish between economic growth and the aggregation of populations into larger settlements. We do not claim to be able to solve all these interpretive issues here. Rather, the key point is that from the Neolithic onwards, there arose evidence for settlements that were fundamentally different from their predecessors; clear loci of residential construction on a greater scale than had ever been seen before. Even if this process entailed some degree of agglomeration, it would be shocking if it were not concomitant with an increase in the productivity of supporting environments, and very likely, an increase in the quantity of things (tangible or not) produced per person.

It is beyond the scope of this chapter to provide an exhaustive and critical account of Neolithization processes. Other archaeologists have already done an excellent job (e.g. Fuller 2006; Miller et al. 2009; Simmons 2010; Zeder 2011). Rather, our point is that many Neolithic settlements were associated with



Figure 2.2 Diagram showing comparative spatial footprints excavated areas or extant mounded areas that are detectable using Google satellite imagery (accessed 2022) of early cities and megaliths.

unprecedented economic expansion. One of the first settlements where this process was recognized was ‘Ain Ghazal in Jordan (Rollefson 1986). The site, which grew through the building of rectilinear house complexes, was enormous, covering as much as 15 hectares when other large Neolithic settlements, like the famous Jericho, covered barely four (e.g. Kenyon 1954). Similar patterns have been reported at Çatalhöyük in Turkey, also nestled within the home range of the West Asian Neolithic. The site extended over 13 hectares (see Figure 2.2), and archaeologists have identified 18 distinct levels within a tell that is 19 meters in depth and spanned some 1,100 years of occupation (Cessford and Carter 2005). Various population estimates for Çatalhöyük have been proposed, but most agree that at least 3,000 individuals resided at the site by its heyday in 6500 BC (Düring 2007: 158). At its height, Çatalhöyük comprised a dense cluster of rectilinear residences (Düring 2006; Mazzucato 2016) that overlay burials and often included striking representational artifacts, such as leopard murals and curated human

remains (Hodder 2014). For the Levantine megasites in general, Ian Kuijt (2000) has calculated a growth rate in settlement size of around 5,000% over a period of 2,000 years during the Neolithic transition. Moreover, most of this growth appears to have occurred rapidly, over just a few centuries between 6300 and 6000 BC (Kuijt 2000: 86). Despite the large absolute sizes attained by the megasites and the evidence for punctuated episodes of growth, there are virtually no indications that these societies were ever hierarchically organized. Nor did they apparently exhibit significant disparities in wealth among their populations. Ian Hodder (2014: 1) has even gone as far to describe Çatalhöyük as “an aggressively egalitarian community.”

Far to the east of Çatalhöyük, the site of Mehrgarh is perhaps the best-known Neolithic settlement in South Asia. Located in the Baluchistan highlands in the southwest of modern Pakistan, Mehrgarh includes a chain of settlements that were abandoned and reconstructed over a period of almost four millennia, beginning around 7000 BC (Jarrige and Lechevallier 1979; Jarrige et al. 1995, 2013; Wright 2010). Although it is not typically referred to as a megasite, Mehrgarh exhibits some important parallels with its western counterparts. First, the site is spread over more than 100 hectares, although this area represents seven distinct and sequential occupations. Significant changes in material culture are evident in each period (Wright 2010). For the first 3,000 years of its occupation, people built houses of equal size and shape, along with small, compartmented storage structures located outside of the houses. After around 3300 BC, the people at Mehrgarh no longer built these communal storage structures, and platforms for craft production were relocated into the houses. As was the case in each of the other megasites, there was a substantial increase in housing construction and only minor differences in the assemblages from different houses. As ever, population estimates are uncertain, although one study used paleo-demographic data from the Chalcolithic cemetery at Mehrgarh to estimate a maximum population of 1,000 individuals (Sellier 1989). Throughout its long history of habitation, Mehrgarh shows virtually no evidence for social stratification, coupled with persistent signs of ongoing building and other productive activities.

Foremost among the world’s Neolithic megasites were the massive Trypillia<sup>1</sup> settlements that people built between the Bug and Dnieper interfluvium around the end of the 5th millennium BC (Chapman 2017; Gaydarska 2020; Menotti and Korvin-Piotrovskiy 2012; Müller et al. 2016; Ohlrau 2020a). Across the forest steppes of eastern Europe, people constructed settlements with densely-packed rows of thousands of houses arranged around large, central clearings. Their residential blocks were enclosed within ditches that delineated hundreds of hectares and preserved regular open spaces that were accessible to many houses. The scale of the resulting settlement was unprecedented; at the time, they were the largest sites of concentrated human habitation that had ever existed. Despite their striking

<sup>1</sup> There are alternative spellings of this word: Trypillia (Ukrainian), Tripolye (Russian), and sometimes it appears as Cucuteni-Tripolye/Trypillian.

size, their lack of social stratification has contributed to an archaeological ambivalence as to how to categorize them (Gaydarska 2016, 2019).

Many Trypillian settlements have been identified, and archaeological teams have produced particularly high-quality datasets at two of them: Maidanetske (Ohlrau 2020a) and Nebelivka (Gaydarska 2020). The defining feature of both is a radial arrangement of house-rows around a massive open space (Nebbia and Roe 2020; Rassmann et al. 2014). Thousands of houses fill these rows, and given the sheer amount of building evident, it is no surprise that determining the total number of structures that were occupied at any given time has been a point of controversy. Models based on geophysical prospection suggest that thousands of these houses may have been occupied simultaneously, which would indicate that the megasites had populations that regularly exceeded 10,000 people (Ohlrau 2020b). The Maidanetske team also favors a relatively high population estimate of around 7,000 people (Ohlrau 2020a). By contrast, the Nebelivka team has offered a more minimalist model of megasite demographics, suggesting a wide variation between the permanent and seasonal occupations at the site, with the former peaking around 3,000 (Chapman 2017). In either case, it is likely that the sites required substantial and regular in-migration (Müller et al. 2016), creating an unprecedented population peak in a region that had previously been only thinly occupied. According to Chernovol (2012), house construction was continuous over the entire period in which the sites were occupied, most of which exhibited a standardized combination of amenities, including altars, ovens, podiums and benches. There was also remarkable churn in construction activities. Blocks of houses were ritually burned at regular intervals (Chernovol 2012; Johnson et al. 2019)—events that would have comprised a major feature of social life at these sites (Gaydarska 2020). Tripillia houses were also filled with craft objects, especially ceramic vessels, figurines and tokens. For instance, Nebelivka produced pottery on a massive scale, resulting in an economy that supported the invention of new ceramic forms and techniques (Gaydarska 2020). These pottery production facilities actually predate the rest of the settlement, and apparently, formed an impetus for the later radial development of residential spaces (Gaydarska 2019).

The proliferation of houses and the goods they contained coincided with a growing concern for inter-household governance within the Trypillia megasites. Considerable collective action accompanied this growth, coordinating the activities of many different social groups—a process akin to that reported in many other pre-modern societies (e.g. Blanton 1998; Blanton and Fargher 2008; Carballo 2013a; DeMarrais and Earle 2017; Feinman 2018; Green 2018, 2022). Several lines of evidence speak to such governance processes. Shared rules governed the use of spaces between housing rows, which were maintained as thoroughfares for centuries. Large, public clearings were delineated with ditches and would have necessarily structured the movement of people through the settlement. There are also multiple structures that were larger than the houses and interspersed throughout the settlements (Gaydarska 2019; Rassmann et al. 2014). Some of these exceptional buildings—though relatively modest in extent at around 16 by 8 meters—have been labeled megastructures. They appear to have played a role in facilitating joint

decision-making, provided spaces for the storage and distribution of goods (Hofmann et al. 2019) and were typically positioned in locations of high public visibility (Ohlrau 2015). Megastructure 3 at Maidanetske, for instance, contained a lower density of pottery than the houses but also activity areas that were clearly dedicated to the preparation of plant and animal products on a large scale (Hofmann et al. 2019: 55). Overall, more than a dozen such structures have been found at regular spatial intervals within the site. Their internal characteristics and assemblages have been cited as evidence that efforts to monopolize pottery production were either absent, discouraged or unsuccessful (Hofmann et al. 2019).

Megasites were not the inevitable outcome of Neolithization. Yet the appearance of megasites in multiple regions—the Levant, Anatolia, Balochistan, south-eastern Europe—nonetheless suggests a phenomenon that was not constrained to one time or place. From a comparative perspective, a megasite can be defined as a permanent settlement with an area in excess of 10 hectares and a population of at least a thousand people, which, despite its impressive scale, shows virtually no evidence of significant social stratification. It is especially interesting that there is no evidence for a correlation between settlement size and wealth differentiation, with the largest settlements seemingly just as egalitarian as the smaller ones. Finally, there is very little evidence for centralized institutions that sought to monopolize decision-making or material resources in the megasites. Even if we interpret the Trypillia megastructures as public structures that fulfilled integrative decision-making functions, the fact that there were 13 such buildings at Maidanetske, distributed throughout the entire site, argues for a polypolistic (rather than monopolistic) organization of power. We will consider polypoly, especially with regard to craft, in greater detail later. Here, the point is that traditional archaeological theory assumes that, the larger a settlement becomes, the more centralized and hierarchical it should be. However, if rapid economic growth can crowd out capital (as discussed in the previous chapter), then there is nothing anomalous about the Trypillia megasites at all. In fact, such egalitarian economies are precisely what one would expect for the rapidly growing and highly productive settlements of southeastern Europe during the Neolithic.

We began this section by pointing out that the Neolithic sites that have come to be known as megasites are an ill fit with the traditional Childean concepts of the Neolithic and Urban Revolutions. For some, megasites are not cities because they lack clear evidence of hierarchy. Others argue that they represent an alternative route to urbanism. In the words of Gaydarska and colleagues (2020: 117): “there were at least two routes to urbanism before the state in the fourth millennium BC”; namely, the Trypillia trajectory and Childe’s traditional narrative. Such a view, however, implies that megasites and early cities all represent pathways to the same destination; an inherently teleological framing. On that point, it is worth emphasizing that there is not a single megasite anywhere in Eurasia that ever became anything other than a megasite. To be sure, they endured for centuries—even millennia, in some cases—and also experienced significant changes over their lifespans—but at no point did any megasite transform into a radically different kind of settlement. Eventually, they were all abandoned. More to the point, none

of them provided the foundations for the much larger cities that were to emerge in the Bronze Age. For that reason, the desire to fit the megasites into some broader pathway toward urbanization seems a strange impulse—the megasite phenomenon was a trajectory all on its own, and the path they took was ultimately only toward themselves. To us, that makes them more interesting, not less. By extension, the constant refrain of ‘but is it a city?’ feels like an intellectual trap at this point. Of course, we do not reject comparative categories *per se*, since the very application of the term megasite to the Neolithic contexts of South Asia, Southwest Asia and eastern Europe is itself an exercise in broad archaeological comparison. Yet, for us, the megasites are not interesting because they tell us something about the origins of urbanism. Instead, the megasites draw our attention because they highlight a striking association between rapid economic growth and egalitarianism. As we will now explore, this same association can be seen in settlements that have long been seen as the first cities.

### Cities without citadels

The Neolithic megasites of Eurasia testify to a precocious surge in economic growth, but they still pale in comparison to the urban societies that arose some 5,000 years later. The earliest of these were the Bronze Age cities of Mesopotamia and the Indus region that so fascinated Childe (1929, 1950). In this section, we review Childe’s original case studies but also expand our scope to include regions of ancient urban development that have come to light more recently. Although we share Childe’s view that, from the perspective of deep history, urbanism should be understood as a revolutionary process, we strongly disagree with Childe in terms of what the Urban Revolution itself actually entailed. Specifically, it was not the appearance of social stratification that made the first cities truly revolutionary places; rather, it was the remarkably high levels of economic growth that they sustained. In those regions where urbanism initially emerged, we virtually always see a remarkably egalitarian social order in effect, which, in some cases, endured over many centuries. These early cities were sites of significant wealth production, yielding substantial quantities of many different kinds of things. As crucibles of production, the first cities thus allowed people to transform their environments, develop new infrastructures, invent sophisticated technologies and interact over unprecedented spatial scales.

In making this argument, we focus on contexts where cities developed under what are sometimes called ‘pristine’ conditions; that is, where cities emerged without obvious local or neighboring antecedents (*sensu* Cowgill 2004). Again, our intention here is not to debate the definition of urbanism itself—there is already an extensive literature dealing with this problem (e.g. Birch 2013; Clark 2013; Feinman 2011; Gyucha 2019; Pauketat 2009; Smith 2009; Trigger 2003; Wright 2002). Our concern is, rather, with cities as general loci for high economic growth, despite how much they varied in other respects. By extension, the economic character of the first cities (without citadels) were very different from those associated with secondary urbanizations, which were often the political projects of empires

(e.g. Storey 2020). We will now turn to a range of regional case studies to flesh out some of the theoretical points discussed earlier.

### *South Asia*

One of the world's first great urbanizations took place within and around the extensive Indus River Basin, from roughly 2600 BC onwards (Kenoyer 1997a; Petrie 2013; Possehl 2002; Ratnagar 2016; Shinde 2016; Wright 2010). The proliferation of cities across the Indus plain was an elaboration of the earlier Neolithic economy that had been established at sites like Mehrgarh in the highlands to the west, but once transferred to the alluvial lowlands, this agro-pastoral lifestyle seems to have unlocked unprecedented levels of economic growth. Here, hundreds of interconnected agro-pastoral settlements forged a highly productive economy based on intensive crafting, agriculture that followed a seasonal cycle of winter cereals (wheat and barley) and summer cereals (rice and millet) (Petrie and Bates 2017; Weber 1999), alongside animal husbandry centered on cattle, buffalo, sheep, goats and pigs (Channarayapatna 2018; Chase 2010; Meadow 1998; Meadow and Patel 2003).

During the Indus civilization's Urban Phase (ca. 2600–1900 BC)—the middle part of the region's Bronze Age—at least four of its settlements grew to metropolitan proportions: Rakhigarhi, Harappa, Dholavira and Mohenjo-daro (see Figure 2.2). Ganweriwala was also a significant urban center (Mughal 1997), though it may have been just one of a cluster of similar, tightly packed settlements (Orengo et al. 2020). Indus cities were effectively the largest nodes in a vast network of interacting communities, but it should also be noted that the differences between all these sites was more one of scale rather than form or function. In other words, Indus 'cities' share many or all of their salient characteristics with Indus 'towns.' The archaeological tradition of distinguishing four or five canonical Indus cities thus reflects a somewhat arbitrary cut-off point in terms of size, rather than clearly marking a distinct category of site.

One of the best-studied Indus sites is Mohenjo-daro, located in what is now south-central Pakistan. Set within a relatively low-relief landscape, Mohenjo-daro was constructed atop a series of massive, interlocking platforms composed of mud and baked brick, which elevated its densely-packed neighborhoods above the surrounding alluvium (Jansen 1993b: 269). These platforms required significant labor mobilization and speak to the existence of highly organized forms of governance. Possehl (2002) estimates that constructing just one of the platforms at Mohenjo-daro would have required around 4,000,000 person-hours. Each of the Indus cities underwent similar expansions as their occupants established new neighborhoods (e.g. Jansen 1978; Kenoyer 2012; Wright 2018), built both large- and small-scale non-residential structures (e.g. Fentress 1976; Green 2018, 2022; Vidale 2010; Wright 2010) and developed infrastructural amenities that could be widely enjoyed by many ordinary households (e.g. Jansen 1993b; Marshall 1931; Rizvi 2011; Wright 2016; Wright and Garrett 2017).

The total number of settlements within the Indus sphere also increased alongside the urban agglomeration occurring at apical centers like Mohenjo-daro. Located between and among the Indus cities were thousands of smaller-scale settlements, which have often been characterized as satellite settlements or villages and producing a similar material culture (Fairservis 1986; Parikh and Petrie 2016, 2019; Petrie 2019). Indus cities were, moreover, distributed across a highly varied landscape, with hundreds of kilometers separating each city from the others (e.g. Fairservis 1986; Joshi et al. 1984; Kenoyer 1997a; Parikh and Petrie 2019; Petrie 2017, 2019; Sinopoli 2015; Wright 2010). In this respect, Indus cities seem to reflect a very different spatial distribution to the city-states of the Aegean or the Yucatán during their respective Classic eras, which were much more proximate to each other. The numerous, smaller-scale Indus settlements were not fossils of the pre-urban era (i.e. villages that failed to evolve into cities). As the larger centers urbanized, smaller settlements also underwent material transformations analogous to those that took place within the cities. At many sites, like Kalibangan (Lal 2003), Farmana (Shinde et al. 2011), Vainiwal (Wright et al. 2003) and Lahoma Lal Tibba (Wright et al. 2005), the inhabitants invested their labor into structures that were similar to those that appeared in the cities: large brick platforms and planned streets. Impressive craft production facilities have also been identified at the small sites of Chanhu-daro in Sindh (Mackay 1943) and Bagasara (Chase et al. 2014a).

We argue that the massive labor expenditures seen in Indus sites are clear evidence of high economic growth. Such growth was likely associated with the region's varied and dynamic, arguably even volatile, environmental conditions. In semi-arid Sindh, the region that sustained Mohenjo-daro, it is likely that the main course of the Indus itself shifted (e.g. Flam 1993), causing much disruption to established land-use patterns. Even today, cereal cropping in the Lower Indus Basin presents major challenges, leading Ratnagar (1986) to argue that intensive monocropping would have been impossible there without substantial investment in wells.

Northwest India, another major Indus region, was criss-crossed by thousands of kilometers of meandering, low-energy watercourses that twisted through extensive sand dunes, resulting in avulsions that changed water availability over brief intervals of time (e.g. Durcan et al. 2019; Neogi et al. 2018; Orengo and Petrie 2017). Rainfall patterns also altered dramatically around 2100 BC, when the Indus cities were at their apogee (Dixit et al. 2014a, 2014b, 2018; Giesche et al. 2019). Likewise, in northwest India, Petrie (2017) has described Indus-era climate conditions as 'predictably unpredictable,' with rainfall patterns changing dramatically from year to year. This instability, in combination with a weakening in summer rainfall around 2100 BC, (Dixit et al. 2014a, 2018), would have required constant adaptation. And yet, northwest India has hundreds of Indus sites and saw considerable growth in settlement size over a couple of centuries (e.g. Dangi 2018; Green and Petrie 2018; Joshi et al. 1984; Parmar et al. 2013; Shinde 2016; Suraj Bhan 1975). Similar environmental dynamism has been reported in other Indus regions (e.g. Schuldenrein et al. 2004, 2007; Wright et al. 2008), which may explain why

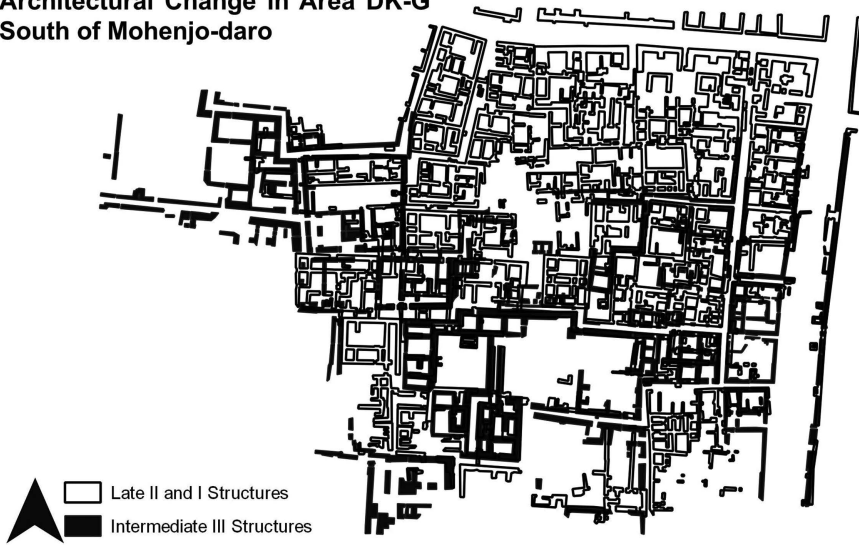


Indus settlements were so numerous and why so many had only brief periods of occupation (Petrie and Lynam 2020).

In other words, it is likely that Indus communities were frequently faced with the need to adjust, adapt or rebuild their settlements—a constant economic churn. High economic growth was likely a feature of Indus economies in good years, which were clearly more numerous than bad ones. But shifts in water availability likely required settlements to be periodically relocated, which meant regular losses of significant quantities of materialized labor. At the same time, the need to establish new settlements would also have provoked bursts of intensive economic productivity through the process of rebuilding. This cyclical pattern is particularly pronounced in the deserts of Cholistan (Petrie and Lynam 2020). Environmental precarity may also explain the high number of settlements that have been reported in northwest India (Green and Petrie 2018; Green et al. 2019). Indus communities appear to have built thousands of settlements in a punctuated fashion; that is, within a succession of short and discrete growth windows. Although the trigger in the Indus case seems to have been shifting hydrological and climate regimes, we might draw a comparison here with the regular burning and rebuilding episodes that occurred within the Trypillia megasites.

As with the Neolithic megasites, Indus settlement expansion also focused on houses, which were themselves loci of craft production. Indus residences were generally comprised of rectilinear structures with multi-use rooms arranged around a courtyard (Sarcina 1979; Shinde et al. 2011), and while there is some heterogeneity in the size of Indus residences (Cork 2011; Vidale 2010), many of the sharpest contrasts in residence size belong to structures from different phases (Green 2018, 2021). In rural India today, house courtyards are commonly used to accommodate buffalo for dairying (Aulakh et al. 2011), and it is plausible that Indus courtyards served similar purposes in the past. Isotopic analysis from Indus sites in northwest India confirm that cattle and buffalo were provided with fodder (Lightfoot et al. 2020), and the use of animal labor for pulling carts and plows is also well attested, both through zooarchaeological evidence (Miller 2003) and miniature representations of terracotta carts (Kenoyer 2004). During the early Urban Phase at Mohenjodaro, larger houses with specialized pyrotechnical facilities are evident, although, in later levels, residential spaces lose many indicators of craft activity (Green 2018). Indeed, a comparison between the early and late levels of Mohenjodaro's DK-G Area reveals an increase in the total number of houses over the entire chronological sequence (Figure 2.3). As was the case in other Bronze Age cities, much economic production appears to have taken place in domestic spaces rather than in specialized manufactories and workshops. This distributed production fostered the invention of a range of new and sophisticated crafting technologies (e.g. Kenoyer 1997b; Miller 2007; Rizvi 2015; Vidale 2000; Wright 1991). These craft technologies utilized raw materials that often had to be accessed from sources many hundreds or thousands of kilometers from the urban settlements (Law 2011). These include beads made of steatite, agate and carnelian; bangles made of terracotta and shell; figurines; copper objects; and distinctive pottery. Indus craft production required deep reservoirs of specialized knowledge and skill, which were often used in the production of small objects for everyday use (e.g. Green 2016, 2021; Miller

### Architectural Change in Area DK-G South of Mohenjo-daro



*Figure 2.3* Early and late phase city plans in Area DK-G of Mohenjo-daro. Based on Mackay (1938).

2007), a phenomenon that has been described as “technological virtuosity” (Vidale and Miller 2000: 115).

And here, it is worth reiterating a fundamental point: the Indus civilization was conspicuously egalitarian across almost all of its vast geographical area. Archaeological evidence from the Indus speaks to a high-growth economy, but not a highly stratified one. There is no evidence that any of this intensive production ever disproportionately benefited a smaller segment of the Indus society—no palaces, no ostentatious tombs, no exclusive temples, nor even art intended to aggrandize specific individuals. Indeed, the opposite was the case; the products of the Indus economy were not only widely available—they were designed for mass distribution. Consider the small size and abundance of craft objects Indus artisans specialized in producing; these were ideal goods for mass consumption. By materializing so much labor in objects that were widely accessible, Indus communities were able to continuously reproduce an egalitarian social order. There are no Indus houses that seemed to have consumed objects to a significantly greater degree than any other—indicating that high-quality finished goods did not operate as sumptuary markers for higher social strata. Nowhere is this pattern more evident than with Indus stamp seals—elaborate craft objects that exemplified Indus wealth. Indus seals combine animal carvings with inscriptions, requiring literacy as well as the specialized knowledge of carvers, and were produced by many different groups (e.g. Franke-Vogt 1992; Green 2016; Jamison 2018; Rissman 1989). Despite their specialized production, seals have been recovered most often from ordinary households, rather than any kind of centralized or institutionalized contexts (Green 2020).

***Mesopotamia***

Childe's original Urban Revolution mainly focused on evidence found between the Tigris and Euphrates rivers. Mesopotamia—literally the land between the rivers—now largely lies within the modern states of Iraq, southwest Iran, Syria and southeast Turkey. Yet the quantity and quality of the archaeological material available has completely transformed since these regions were first dubbed the 'Cradle of Civilization.' Childe's picture of ancient Mesopotamian society was largely derived from remains associated with the Early Dynastic period (ca. 2900–2350 BC) and later. But we now know that the initial growth of large urban settlements began at least a millennium earlier, in the Early Uruk period (ca. 4000–3400 BC). The historical trajectory of Mesopotamian urbanism is complicated by the fact that the lower reaches of the Tigris and Euphrates were considerably marshier than the more arid zones that lay upstream (e.g. Adams and Nissen 1972; Oates et al. 2007). Southern Mesopotamians began to establish substantial cities, alongside clusters of smaller towns and villages, toward the end of the 5th millennium BC, creating the world's earliest urbanized landscape (Adams 1981; Wilkinson 2003). Evidence for the long-term processes of economic growth encapsulated in these sites is found in the many tells of Mesopotamia—artificial hills formed by centuries of mud-brick construction and midden deposits, not unlike the mounds of Bronze Age South Asia. By at least 3000 BC, settlements with large-scale architecture and complex economic arrangements that combined agro-pastoral food production with a range of different crafts had become entrenched throughout Mesopotamia, both north and south (Algaze 2008; Frangipane 2007a; McMahon 2020; Pollock 1999; Postgate 2004; Rothman 2001, 2004; Ur 2010).

However, to the frequent frustration of archaeologists, much of the crucial evidence for the earliest period of urbanization (ca. 4000–3400 BC) has remained obscured or destroyed by later occupations. This is a common problem in the archaeological study of early cities. Consequently, despite having one of the best-documented historical sequences in the world, exposures that date directly to the Early Uruk period are few (Algaze et al. 1989; Nissen 2004). Many scholars, moreover, consider Early Uruk to be a methodologically prehistoric period, meaning that the texts that play a critical role in investigating later periods are of limited utility in understanding the initial urbanization process (Nissen 2004). In comparative chronological terms, Early Uruk is equivalent to the Chalcolithic, and Late Uruk (ca. 3400–3100 BC) is part of the Early Bronze Age, though these terms can obscure important continuities across the two phases, not to mention commonalities with the Bronze Age cities of the Indus.

Thankfully, some data from the Early Uruk period has been recovered from investigations at smaller settlements like Abu Salabikh (Pollock 1999). Datasets are also available from transitional levels at Ubaid sites—those that immediately pre-date Early Uruk—such as Tepe Gawra (Rothman 2002) and Chogha Mish (Delougaz et al. 1996). Eridu is among the best known Ubaid sites (e.g. Oates 1960), but its transition to the Early Uruk period is not so clearly understood. In northern Mesopotamia, the early cities of the Late Chalcolithic—a period contemporaneous with

the Early Uruk in the south—tended to be smaller in size and dispersed across a larger geographical region, with settlements extending into the southern highlands of Anatolia (McMahon 2020; Ur 2010). Due to the dearth of direct evidence from the period of Mesopotamia’s pristine urbanization, texts that were often composed by scribes writing more than a thousand years later are commonly used to fill in missing details about the earliest periods. Methodologically, this approach all but guarantees that any potential differences between the earlier and later periods will be largely effaced.

As was the case in the Indus, surveys and excavations have revealed that the defining feature of Mesopotamia’s initial urbanization was an unprecedented increase in the scale of settlements—both in the size of primate urban centers and the number of smaller rural settlements. Prior to the 4th millennium BC, Mesopotamia was home to numerous small-but-steep tells that were widely distributed across the landscape. Tepe Gawra, a one-hectare site, produced a deep sequence of residential construction and special function buildings that supported craft production and contained clusters of stone seals and clay sealings (Rothman 2002). Adams (1981) combined field survey data with aerial photography to document settlement distributions in areas between river meanders that were cross-cut by fragmentary levees and canals. He found that, during the Early Uruk, there was a substantial increase in the size of a small number of sites and an increase in the number of settlements in other parts of the plain (1981: 64). One of these sites was the ancient city of Uruk itself (a site today known as Tell Warqa), whose growth in area coincided with a reduction in the number of settlements in its immediate hinterlands indicating a nucleation of population.

Uruk’s development was later confirmed through intensive surveys, which revealed that, by the 3rd millennium BC, the site exceeded 250 hectares (Finkbeiner 1991). Similar expansions took place at Nippur, Kish, Lagash and Ur (Algaze 2008). This period of rapid economic growth has been famously described as the ‘Sumerian Take-Off,’ which Algaze (1993, 2008) argues was stimulated by trade between communities located in the region’s patchy environments, with differentiated access to productive resources and transport. According to Algaze, trade fueled urbanization and then led to the establishment of colonies in regions further upstream. There have been a number of modern high-resolution excavations and surveys in the north, where settlements were more dispersed (e.g. Akkermans and Schwartz 2003; Creekmore 2014; Lawrence and Wilkinson 2015; McMahon 2020; Oates et al. 2007). Tell Brak, in the Upper Khabur region of northeastern Syria, has been extensively documented. While Uruk was undergoing its initial expansion in the south, the early city at Tell Brak already exceeded 55 hectares in size (Ur et al. 2011: 6).

As was the case in the Trypillia cities, much of Mesopotamia’s economic growth involved the construction of new residential zones, even though excavations of other major sites have historically tended to focus on tombs, temples and palaces (e.g. Boehmer 1999; Delougaz 1940). Still, there is good evidence that substantial numbers of houses were constructed. In the north, Mesopotamian residential areas were most often constructed by the residents of the houses themselves, a pattern that is often described as organic or bottom-up (e.g. Creekmore 2014; McMahon 2020).

Jason Ur (2014) argues that the typical Ubaid household provided an architectural template that was extended and elaborated to take on new roles as urbanization unfolded. In general, these early Mesopotamian houses had a tripartite structure, defined by a long, central hallway with small, adjoining rooms on either side (Ur 2014: 254). In effect, this tripartite layout was scaled up to make new kinds of buildings, which are usually identified as temples by archaeologists, although, in emic terms, they were still conceptualized as houses (Ur 2014: 260). So, along with the construction of ever larger numbers of houses, Mesopotamians also elaborated on the house format to encompass a wider range of special functions as their cities grew, not unlike the megastructures identified in the Tripillia context or the large and small public structures of the Indus. However, the Mesopotamian temple ultimately attained a greater size than any Tripillia megastructure. And, while the Tripillian megastructures were distributed throughout the settlement, many of Mesopotamia's first cities were (or at least became) spatially organized around temples, which formed their physical and conceptual centers (e.g. Oates 1960).

Excavations at the temple of Eridu have revealed material dating from the Ubaid through the Uruk periods, and its early construction history is therefore well-understood by archaeologists (Oates 1960: 47). It was constructed on a platform that required substantial labor input—a feature that is regularly cited as evidence for Ubaid-period social stratification (e.g. Oates 1960: 47). However, such arguments rest on the assumption that more elaborate architecture and artifacts associated with the temple sequence (in contrast with material recovered from everyday houses) were a consequence of specialized religious personnel directing the labor of others (Pollock 1999: 87–88). This is a theoretical assumption, not an empirical finding. There is no actual evidence that Ubaid and Early Uruk temples, unlike their later counterparts, were administered by a specialist religious class, and even if that were the case, specialized labor and monumental architecture do not stand as evidence, on their own, of stratification. For us, the sociopolitical context in which this labor was organized is a question to be investigated, not something that can be assumed from the mere existence of buildings themselves.

One striking example of high economic growth from northern Mesopotamia is the Eye Temple, which was established early on in the archaeological sequence at Tell Brak, around 3900 BC (Oates and Oates 2002). The Eye Temple is so named for numerous alabaster statuettes topped with evocative eyes that were recovered in substantial quantities from the interior of the complex (Emberling and McDonald 2002) and seem to have become a major component of its artifactual assemblage around 3600 BC. Turning to southern Mesopotamia, a complex sequence of large-scale monumental temples, centering around the Eanna Temple Complex, was built at Uruk during much the same time and expanded to enclose a huge proportion of the site (Nissen 2004). By the late 4th millennium, the Eanna Temple Complex had undergone a process of reorganization in which earlier structures were refurbished or demolished to make way for new monumental buildings, forming the nucleus of a sprawling city (Finkbeiner 1991). A range of statuary, podia, administrative documents and ceramics were recovered from within these temple contexts. However, there is a notable lack of craft debris, suggesting that production did not actually

take place within the perimeters of the temple precincts themselves (Pollock 1999). Mesopotamian houses were loci of intensive production that resulted in substantial quantities of goods that were then distributed across the marshy surrounding landscapes. There was also a significant increase in the production of pottery (e.g. Roux 2003).

Pournelle's (2003) investigation of satellite imagery reveals that southern Mesopotamian waterways were also loci of economic growth, supporting a wide range of marsh-crops like reeds and date palms, while also providing ample fodder-rich corridors for the support of pastoralist communities who moved between settlements. These social ecologies were especially conducive to wool production (through sheep husbandry), encouraging a shift from the use of linen to wool fibers—a major industry in Mesopotamian cities (McCorriston 1997). As Mesopotamian cities grew, sustained by these marsh-goods, cylinder seals (Figure 2.4), which could



*Figure 2.4* Cylinder seal from 3rd millennium Mesopotamia. Adapted from Public Domain Image of an artifact (Accession Number 1984.383.5) held by the Metropolitan Museum of Art, which was acquired from a private collection in 1984. Scale added by the authors based on reported dimensions.

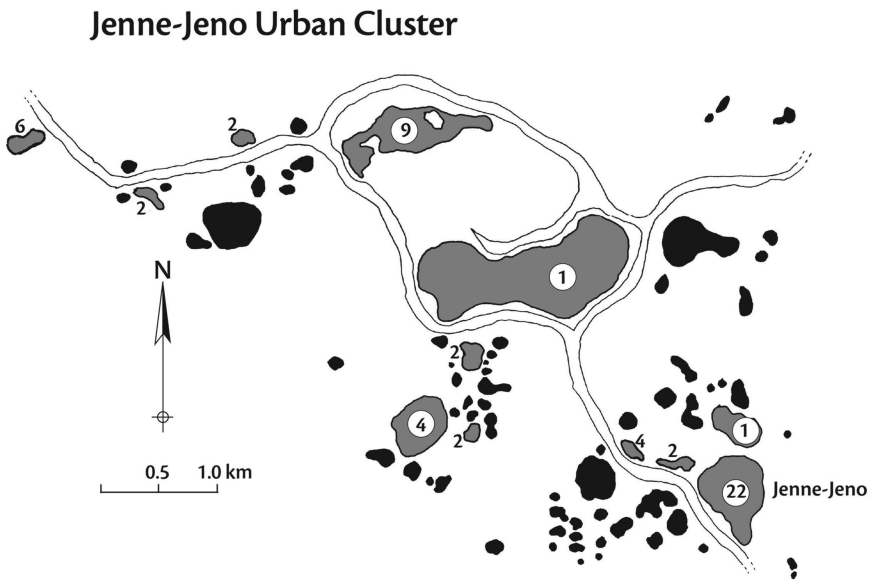
be used to represent an increasing range of complex interactions between people, became widespread (Nissen 1977). Another element of Mesopotamia's material assemblage was the proliferation of beveled-rim bowls. These are relatively standardized ceramic vessels, characterized by the use of heavy temper, that were about ten centimeters high and 18 centimeters in diameter (Millard 1988; Nissen 2004; Rothman 2004). The bowls were mold-made and produced in enormous quantities. Because they appear to have been used only a few times before they were discarded, it is likely such vessels were deployed as a means of measuring out grain rations, either as cereal seeds or as baked bread. Rothman (2004) has therefore suggested that the bowls were a tool of mass labor mobilization, and it has been argued that they represent the first mass-produced artifact in human history.

Thus, in the earliest urban phases of Mesopotamia's archaeological record, there is an abundance of evidence for high economic growth. However, as is true in the Indus, there is no convincing evidence that this growth disproportionately benefited a restricted segment of Mesopotamia's population, and there is growing recognition that stark inequalities took millennia to emerge in the region (e.g. Ando 2017; Ur 2020). During the Uruk Period of southern Mesopotamia, in particular, there were no evident palaces, no segments of houses with access to a greater range of craft goods than others and rulers are conspicuously absent from the art of the earliest levels. In fact, elite-centered iconography and prestige goods of any kind—like exotic stones and precious metals—were absent or rare until the very end of the 4th millennium BC. Once again, high economic growth was the rule; stratification was not. The ostentatious kings and priests evidenced from the Early Dynastic period onwards still remained many generations in the future.

### *The Sahel*

While many of the first cities without citadels emerged in Eurasia, they are by no means the only archaeological examples of pristine urbanization. Nor were they necessarily the most typical. In the West African Sahel—a region that extends along the southern margin of the Sahara Desert—people built substantial cities within a network of discrete alluvial and lacustrine basins from as early as 250 BC (e.g. Coutros 2017, 2018; Dueppen 2012, 2016; R. J. McIntosh 1998; S. K. McIntosh 2005; McIntosh et al. 2016; Togola 1996) (see Figure 2.5). The first cities in this region were characterized by the basic features of urbanization found elsewhere: population aggregation, along with increasing settlement scale and economic specialization. These Sahelian urban communities epitomize the concept of cities without citadels (the term Roderick McIntosh coined to describe them), insofar as they lack palaces, public monuments or ostentatious tombs.

Jenné-jeno is located within the Inland Niger Delta and has been described as a clustered city (S. K. McIntosh 2005). The Inland Niger Delta is a fluvial wetland that extends over nearly 16,000 km<sup>2</sup>, and because it is subject to regular flooding, the region's environment contrasts markedly with the much more arid Sahel landscapes that surround it. Despite being some 200 km from the ocean, the middle stretches of the Niger thus approximate the marshy deltaic conditions more



*Figure 2.5* Clustered mounds of Jenné-jeno and their alluvial context (image courtesy of R. K. McIntosh).

typically associated with littoral contexts. In fact, the environment is not unlike that which supported some of the first cities of southern Mesopotamia during the Early Uruk period (Hammer 2022). Like the hydrological basins of the Indus and Tigris-Euphrates, the middle Niger was environmentally differentiated, providing necessary resources for a diverse range of productive activities (Figure 2.5). For over a millennium, nomadic pastoralists, hunters and fisherfolk created communities alongside farmers who specialized in rice, sorghum, millets and wild grains, building intensively-occupied mounds that were comparable to those of Mesopotamia or South Asia. The Sahel suffers from perhaps the “lowest density of archaeologists” for any region in the world (McIntosh 2015: 365) and yet, despite this patchiness in archaeological coverage, there is more than enough evidence to demonstrate that the pristine cities of the Sahel were engines of high economic growth.

Archaeological surveys provide the primary source of data for reconstructing the ancient economies of the Sahel. Building on the systematic studies that were carried out in the 1980s, focused around the mounded settlement of Jenné-jeno in Mali (McIntosh and McIntosh 1980), subsequent projects have extended the coverage of settlement patterns in the Méma Region (Togola 1996), around Timbuktu (Park 2010) and along the Senegal Valleys (Coutros 2016; McIntosh et al. 2016). These surveys have captured shifting patterns in human settlement that began around 1500 BC and continued into the Medieval period as the trans-Saharan



trade caravans rose in frequency and importance (Dueppen 2016). The overall picture that emerges is one of a long period of permanent settlement and a gradual increase in economic specialization, punctuated by rapid increases in the size and number of settlements that led to the establishment of new cities—what Roderick McIntosh (1993) has described as a ‘pulse’ model of settlement distribution change. This term is telling, highlighting the relatively rapid rate of change associated with urbanization processes in this region. The pulses may have coincided with a period of drier climatic conditions that encouraged greater interconnection between groups of people who practiced contrasting subsistence strategies (R. J. McIntosh 2005). Such punctuated bursts of new building activity were also likely associated with increasing interactions between communities, since mounds were often built in proximity to one another.

From the chronological period known locally as the Late Stone Age, down into the Iron Age, there was an expansion in both the size and number of settlements in the Inland Niger Delta associated with the urbanization of Jenné-jeno (McIntosh and McIntosh 1980). Within four kilometers of the site’s main mound, there were more than 70 contemporaneous satellite settlements; hence, the designation of Jenné-Jeno as a clustered city (e.g. S. K. McIntosh 2005; McIntosh and McIntosh 1984). At its zenith around AD 800, Jenné-jeno’s central mound measured 33 hectares and is estimated to have been home to between 4,000 and 10,000 people. The central mound was the core of a wider urban sprawl that included more than 137 hectares of mound surface and may have been home to as many as 50,000 people (S. K. McIntosh 2005). The main mound anchored dozens of settlements separated by narrow patches of flood-prone marshland, which spatially and symbolically demarcated communities who were pursuing quite different production strategies (McIntosh 1993). Over time, the builders of Jenné-jeno increasingly adopted more durable building techniques, ultimately shifting to rectilinear mud-brick houses in the final phases of the mound’s occupation (McIntosh 1995: 65).

While the Inland Delta was settled all at once, the Méma region provides evidence of discontinuity between the preceding pre-urban and urban phases. Within this region, the number of settlements effectively tripled between the Late Stone Age and Iron Age, with an increase from 28 to 80 identified sites (Togola 1996). While the Late Stone Age sites were occupied as early as 1500 BC, the Iron Age sites date to 250 BC onwards, suggesting that the processes that ultimately triggered the initial urbanization of the Méma region occurred rapidly in comparison to the long preceding period of slow village growth. Moreover, the Iron Age sites in Méma were closer to one another than their Late Stone Age predecessors (Togola 1996)—a more widespread regional phenomenon that was also identified in the extensive surveys carried out around Jenné (e.g. McIntosh and McIntosh 1980; Togola 1996). As such, the transformations occurring in the Méma region during the Iron Age cannot be separated from the contemporaneous transformations taking place in the Inland Niger Delta; high economic growth in the former was part of a regional boom that contributed to the establishment of cities in the latter.

Similar to the Neolithic megasites and the post-Neolithic Eurasian cities, one of the defining features of the Sahel’s first urban economies was the specialized

production of many different kinds of plant, animal and craft products. At Jenné-jeno, artisans produced distinctive fineware ceramics very early on in the site's occupation (McIntosh 1995). These finewares were supplanted over time with larger and more open vessels, suggesting that the people who used them had in mind the preparation of food for ever larger numbers of people (McIntosh 1995: 158–161). Making larger and more complex pottery forms requires specialized knowledge, and more capacious vessel forms are better for storing, conveying and cooking greater amounts of food in limited amounts of space. Although finewares became less common over time, the frequency of slipped wares increased (McIntosh 1995: 182). As has been reported in every other instance of pristine urbanization we have covered thus far, anthropomorphic and zoomorphic ceramic figurines are also abundantly attested from excavations at Jenné-jeno. Human figurines with earlier stylistic precedents in the region were recovered, as well as representations of manatees, horses and unspecified quadrupeds (McIntosh 1995).

Ironworking was a hallmark technology at Jenné-jeno. However, we should note that iron, copper and bronze metallurgy were all present in the Sahel prior to the advent of cities, indicating that this form of craft specialization preceded urbanization (R. J. McIntosh 2005: 151–156). Following a pattern common in the invention and adoption of metallurgy in other parts of the world, iron artifacts first appear in small numbers in Sahelian contexts, mainly in the form of bodily adornments. Over time, the metal was also used to produce tools, expanding beyond its initial deployment in the production of bracelets and other wearable objects (R. J. McIntosh 2005: 267). In later periods, we also see an increasing range of metals and metallurgical techniques being deployed, including copper, which was also alloyed to create bronze and brass (McIntosh 1995: 227). Nonetheless, iron production remained a pre-eminent domain of expertise and resource management. For instance, bloomery steel is reported at Jenné-jeno and would have required the importation of both ores and fuels across very large distances. This virtuosity in metalworking was likely understood as a product of restricted—or even ‘occult’—forms of knowledge among the inhabitants (McIntosh 1998), which perhaps explains why its production was increasingly localized on separate mounds in the Jenné-jeno complex. Metallurgical production surged in the site's Phase IV, which was also a period of particularly high settlement growth (McIntosh 1995: 282), while iron production at other sites in the Sahel also took place on a relatively greater scale. In the Méma Region, for instance, the sites of Boulel and Boundou Boubou were heavily specialized in the mass production of iron (Togola 1996: 100), with more than 100 furnace bases documented at Boulel alone, despite it being a fairly modest seven hectares in area. Given such impressive levels of production, it would seem iron objects were widely accessible in these societies. Indeed, as with other regions of pristine urbanization, the high levels of economic growth evidenced in the Iron Age Sahel seem not to have been associated with increased socio-economic stratification. All the classic archaeological indicators of elites—whether architectural, residential or mortuary—remain almost entirely absent from the record (R. J. McIntosh 2005).

*The Andes*

Rapid increases in economic growth leading to settlements archaeologists tend to identify as cities were also evident in the ancient Americas. The deserts of the Pacific coast of the Central Andes are a case in point. Although the Andean coasts are hyper-arid due to the rain shadow created by the mountains to the east, the extreme dryness of the region is punctuated by many east-west-running valleys that have supported permanent human occupations for millennia. The contrast between the Andean desert and the verdant river valleys that cross it is no less stark than that between the Nile and the Sahara; the key difference being that the Andean desert is broken up by lots of small rivers, rather than one massive one.

The Late Preceramic (ca. 3100–1900 BC) is distinctive for the appearance of a large number of monumental complexes in this region—a dramatic contrast with the relatively modest fishing villages that had existed during the millennia prior (Pozorski and Pozorski 2018). Moreover, these monuments appeared at least 1,000 years before the advent of pottery, and perhaps even without any significant intensification in the production of domesticated cereals. Due to the upwelling of nutrients caused by the Humboldt Current, the Pacific coasts of South America boast the world's richest fisheries, and it has therefore been argued that the earliest shift toward monumental sedentism in the region was largely fueled by marine protein, rather than by cereals (e.g. Moseley 1974), although the caloric basis of Andean civilization is a matter of ongoing controversy (c.f. Beresford-Jones et al. 2018; Haas and Creamer 2006). In any event, a high reliance on fishing does not necessarily mean agriculture was unimportant; on the Andean coasts, the cultivation of cotton (for nets) and gourds (for buoys) was clearly essential to maintaining the maritime component of the subsistence economy (Sandweiss 2009). The vital role of fishing nets in the origins of Andean civilization means that it is not so much an exception to the general observation that agriculture is the necessary foundation of urbanism; rather, it implies an agricultural revolution of a very unusual kind. In other words, the basis of early monumental societies in the Andes was not so much food cultigens as it was plant-based textiles—at least by comparative standards (e.g. Beresford-Jones et al. 2018).

Among the earliest monumental centers to emerge was the site of Aspero, located in the Supe Valley of what is now Peru, with an approximate date range between 3000 and 2500 BC. Aspero includes 13 mound structures, spread over 13 hectares, several of which were capped by buildings with substantial quantities of interred clay figurines, wooden bowls, shell and various other offerings (Feldman 1982). During the later centuries of the Preceramic, similar monumental complexes were constructed, but in greater numbers and on a much grander scale. The best understood of these sites is undoubtedly Caral—also located in the Supe Valley, but about 20 kilometers farther inland. Major constructions at Caral began ca. 2600 BC and continued for several centuries thereafter. At its maximum extent, Caral reached some 66 hectares and boasted at least 32 major public structures, the largest of which far exceeded the size of their earlier counterparts at Aspero. For example, the architectural footprint of the Great Pyramid at Caral is 21 times the size of the

largest structure at Aspero, the Huaca de los Idolos. Caral and its sibling sites are even regarded by some as the first cities of the ancient Americas (e.g. Solis 2001).

Interestingly, precocious urbanization in the central Andean coasts lacks any accompanying evidence for social hierarchy (Burger 1992). There are no elite burials, palaces or images of rulers, such as those that appear much later in Andean prehistory. Moreover, there is a general lack of exotic materials used to produce sumptuary craft goods in later periods. Classic Andean exotica, such as *Spondylus* shell (spiny oyster)—an import from more northerly waters—are rarely found at Preceramic sites, and even then, only in small quantities (Carter 2011). Arguments for the existence of a ruling class during this period therefore rest almost entirely on the mere existence of monumental architecture itself; the implicit assumption being that humans are incapable of organizing themselves to produce complex structures without elite direction.

During the subsequent Initial Period (1900–900 BC), the scale of this construction activity increased—in some cases dramatically—and expanded beyond the Supe, Fortaleza and Pativilca valleys that had provided the initial foci of economic growth. U-shaped pyramids, plazas and other large-scale buildings filled many of the coastal valleys of the Andes (Burger 1992). And yet, archaeological evidence for significant wealth stratification and social hierarchy is also largely absent in the Initial Period. One of the best-known sites from this period is Cardal, located in the Lurín Valley (near modern Lima). Excavations at Cardal have revealed a major monumental complex, with associated residential structures, dating to the final centuries of the Initial Period (Burger and Salazar-Burger 1991). But, despite its undeniable monumentality, according to the excavators it is “difficult to justify interpreting the resident population at Cardal as a true elite” (Burger and Salazar-Burger 1991: 293). Moreover, midden contexts indicate that the houses at Cardal lack any real divisions of rank, status or wealth and give the general impression of a “modest egalitarian lifestyle” (Burger and Salazar-Burger 1991: 293). There is no evidence that access to the goods produced by these explosive early economies were restricted to any kind of narrow ruling class of elites, and indeed, most of the surplus labor appears to have been invested in the kinds of things that could be enjoyed widely by the community.

How, then, do the developments of the Late Preceramic and Initial Period Andes fit into our larger argument? In essence, we see the Andean record as furnishing us with additional examples of highly egalitarian cities. Many archaeologists would be uncomfortable with the idea that a site like Caral should be called a city, since its total population is estimated to have been only about 3,000. However, as stated earlier, our aim here is not to advance a rigid definition of urbanism. Our concern is, instead, with economic growth, as evidenced by large and rapid materializations of human labor, for which cities (however defined) are an excellent proxy. Whatever label one wishes to apply to the early monumental centers of the Andes, they undoubtedly represent an example of high economic growth for which there is no local precedent, and for this reason, draw our attention. Caral was but one of 30 or so such centers, and their combined population, dispersed across about 35 square kilometers of the Supe Valley would have been around 20,000 people. In other

words, taking in the whole valley, the Preceramic occupation of the Supe drainage was demographically comparable to an early city in the West or South Asia, such as Uruk or Mohenjo-daro. Thus, we have yet another example of remarkable growth in an ancient context, which lacks any accompanying evidence for major wealth disparities. Moreover, this relative egalitarianism seems to have been maintained consistently over the course of at least two millennia. Whereas later time periods in the ancient Andes—especially after AD 100—did see the rise of hierarchical cities with ruling classes, this was evidently not how Andean complex societies *began*.

### *Mesoamerica*

Although the Andean coasts provide the earliest evidence for incipient urbanization and monumental architecture in the Western Hemisphere, a second major zone of urban development lay to the north in Mesoamerica. Our picture of Mesoamerican urbanism has been heavily shaped by the cities of the Classic Period (AD 250–900), a time when the region was home to a large number of starkly inegalitarian settlements, particularly in the Maya lowlands. The material elaboration of aristocratic life was especially pronounced at this time, reaching its apogee in the royal courts of the Classic Maya (Jackson 2013), who were likely among the most unequal societies to have existed in the pre-colonial Americas (e.g. Feinman and Carballo 2018). Interestingly, recent research has shown that even modest Maya centers of the Classic Period, such as those in the Rio Blanco drainage of southern Belize, were often just as inegalitarian as their more imposing counterparts in the heartland, such as Tikal or Calakmul (Thompson et al. 2021). The ethnohistoric record, with its extensive descriptions of the great Aztec metropolis of Tenochtitlan, offers a broadly similar picture with respect to the highland regions of Mesoamerica during the Postclassic (AD 1000–1521). Aztec society was one with sharp distinctions between nobles and commoners; two groups whose rights and privileges were clearly delineated (Smith and Hicks 2016). Archaeological analyses of Aztec-era residential sites also show an obvious class divide with respect to material accumulations of wealth (Olson and Smith 2016). But was Mesoamerican civilization always typified by such extreme hierarchies? This had traditionally been the view of archaeologists working in the region, where the theoretical assumption that inegalitarian chiefdoms always precede even more inegalitarian states is widely held. For instance, the Olmecs are typically discussed in terms of being the first complex society to emerge in Mesoamerica, and there has long been a debate as to whether they should be characterized as a state or just a chiefdom (Pool 2007: 18–19). Certainly, there is strong evidence for socioeconomic stratification among the Olmecs, such as elite portraiture (i.e. the famous colossal heads), caches of exotic goods and burials sufficiently elaborate to warrant the term royal (e.g. Clark 1997; Cyphers 2004; Pool 2007).

Up until the opening decades of the 21st century, it seemed that the Mesoamerican archaeological record largely conformed to traditional Childean expectations, with plenty of examples of cities replete with monumental architecture, craft specialization and the manipulation of the written word by priestly and monarchical

elites. Yet, an explosion of new data on Mesoamerican urbanism has created something of a revolution, largely driven by the application of lidar technology to the heavily forested landscapes of the Yucatan Peninsula (Chase et al. 2012; Garrison et al. 2019; Rosenswig and López-Torrijos 2018). Environments that had previously been difficult to survey have yielded extensive datasets that have major implications for the comparative study of early cities. In particular, it is becoming clear that many of the urban centers of the Preclassic period were substantially different from their Classic successors; although, as in Mesopotamia, much of this evidence underlies later occupations, which has impeded archaeological investigation (Pugh 2021). Our lack of knowledge of the Preclassic relative to the Classic has meant that evidentiary gaps are often filled with assumptions, including the simplistic idea that all premodern complex societies were inherently despotic (Blanton et al. 2021).

An excellent example of the new picture of Preclassic Maya urbanism that is emerging is seen in the site of Aguada Fénix, located in Tabasco, Mexico, dating to ca. 1200–750 BC (Inomata et al. 2020). Lidar mapping of the site has revealed a large (300+ hectare) settlement complex, organized around a massive rectangular platform that is 1.4 kilometers in length and almost 0.4 kilometers in width. In addition to this primary platform, the site consists of a mosaic of causeways, smaller platforms, reservoirs, plazas and rectangular complexes. It remains unclear exactly how much of the site was given over to residential functions, making any attempt to estimate its population premature at this stage. But the primary platform at the site represents a prodigious congealment of human labor, estimated to amount to between 10 and 13 million person-days, and in terms of volume, the largest ancient Maya structure currently known to exist (Inomata et al. 2020). Moreover, the initial radiocarbon evidence suggests this huge platform was built within a fairly rapid 200-year timespan (ca. 1000–800 BC). By any standard, this site represents a significant episode of rapid economic growth, despite the fact that, according to the site’s investigators: “Aguada Fénix does not exhibit clear indicators of marked social inequality, such as sculptures representing high-status individuals” (Inomata et al. 2020: 532). The preference for large platforms at Aguada Fénix, rather than the pyramids associated with more hierarchical Mesoamerican centers, is the main reason why the site has only recently come to light. Vertically exaggerated monuments are easy to find in the rainforest, but identifying horizontally exaggerated monuments has only become practical recently, thanks to lidar technology (McAnany 2020).

Aguada Fénix is by no means unique. According to one recent synthesis, “processes of urbanization in the southern Maya lowlands . . . especially those of the early Middle Preclassic Period . . . did not necessarily derive from or immediately produce the institutions of hierarchical organization that would eventually guarantee the southern lowland Maya states of the Late Preclassic and Classic Periods” (Canuto and Estrada-Belli 2022: 73). There is also growing evidence that much of the economic growth that might once have been attributed to the highly stratified societies of the Classic Maya may actually have occurred during the Preclassic. We have already mentioned the monumental platforms constructed at Middle

Preclassic urban centers, but there were also impressive levels of investment in landscape-scale infrastructures. Perhaps the clearest indicator of such is the building of causeways—raised highways known as *sacbeob* in Maya—which proliferated during the Middle Preclassic (Pugh 2021). Such infrastructural entities are not only major congealments of labor but also facilities that would have promoted inter-site communication and exchange and thus, by extension, economic activity of all kinds. Additionally, evidence for craft production is considerable throughout Middle Preclassic contexts and included worked objects of obsidian, greenstone and shell, alongside ceramics and textiles. Interestingly, it seems that Middle Preclassic craft production was largely an activity that took place within residential sites (Aoyama 2017); perhaps a noteworthy parallel to the decentralized crafting traditions of the Indus as discussed above.

The wealth of any society depends, at least in part, on the toil of its predecessors. We drive on roads that were built decades or even centuries ago. In some parts of the world, crops are still raised in fields that were first cleared during prehistory. Yet what happens to that wealth as it is transferred from one generation to the next can be highly variable. Sometimes, wealth produced by the community retains its largely communal character, whereas, on other occasions, access to that wealth becomes concentrated into relatively few hands. Perhaps the key question regarding ancient Maya economics is then what is the long-term historical relationship between the *production* of wealth (economic growth) and the *concentration* of wealth (returns on capital)? Although elites always like to conflate their accumulation of wealth with its creation, we should never take their claims at face value. It is clear that a great deal of wealth existed in the cities of the Classic Maya, much of it under the direct control of the nobility. But how much of that wealth was created in earlier times? Did the Maya aristocrats oversee the production of their riches or did they largely appropriate wealth that was already in existence? The rapidly accumulating new archaeological data on the scale and complexity of the Middle Preclassic, despite the persistent lack of significant social inequality, is certainly suggestive, although much more work is yet to be done. In any case, our theoretical framework offers some clear predictions that are in line with present evidentiary trends. Specifically, we suggest that the overall rate of economic growth will prove to have been higher during the Middle Preclassic, associated with the relatively egalitarian and kingless societies of that time period. Moreover, we predict that the ‘Age of Kings’ that perhaps began in the Late Preclassic will be shown by archaeologists to have been a period of declining economic growth, coupled with a considerable increase in wealth concentration among an emergent nobility.

The urban sites of the Preclassic Maya are not the only ancient Mesoamerican cities that have recently been subject to revisionist interpretations. Another significant case is the site of Monte Albán, located in the Valley of Oaxaca in the southern highlands of what is now Mexico. Established ca. 500 BC, Monte Albán is best known for its artificially flattened and monumentalized hilltop that serves as the site’s core. The population of the site eventually reached a maximum of 5,000 individuals, although its immediate hinterland was densely populated with over

30,000 people living within 10 kilometers of the core during the Late phase (Nicholas and Feinman 2022: 162). As with many of the other urban centers we have discussed in this chapter, Monte Albán exhibits very little evidence for class stratification, such as royal burials or elite-aggrandizing iconography and architecture (Nicholas and Feinman 2022). It also lacks evidence for centralized storage facilities or other signs of significant wealth concentration—whether in government facilities or in particular households (Nicholas and Feinman 2022). Thus, according to a recent study, the rise of Monte Albán was ultimately due to “an episode of intensification, demographic increase, and economic growth that . . . was neither spurred by demographic pressure nor directed through top-down coercion” (Nicholas and Feinman 2022: 2). As more and more of the first cities of the Americas are being re-evaluated, whether due to new kinds of archaeological evidence or simply changing theoretical perspectives, the overall picture of early urbanism in the region is rapidly shifting. Having concluded our survey of ancient cities with Mesoamerica, we can also see that these revised interpretations do not render its urban trajectory in any way anomalous. Broadly similar patterns can be found with respect to pristine urbanization processes in the Andes, Mesopotamia, South Asia and West Africa. Thus, we must ask: at what point are the exceptions so numerous that they actually become the rule?

### **Escaping the stratification trap**

In the 21st century, evidence for urbanism’s egalitarian origins has outgrown elite determinism’s stratification trap. Tripillian megasites were too egalitarian to be ‘complex’ (Gaydarska 2019: 180); the Early Uruk was produced through a ‘bottom-up’ process of urbanization (Ur 2020), initially free of a ruling class; the Indus civilization’s Urban Phase unfolded in the absence of stratification (Green 2021); and the clustered cities of the Middle Niger lacked “highly visible ranking or stratification” (S. K. McIntosh 1999: 22); in the Andes, it continues to be “difficult to justify interpreting the resident population at Cardal as a true elite” (Burger and Salazar-Burger 1991: 293); and in Mesoamerica’s Monte Albán, economic growth occurred in the absence of ‘top-down coercion’ (Nicholas and Feinman 2022: 2). The economic transformations that occurred in each of these contexts are evidence of high economic growth, and all appear to have produced (and been produced by) social relations that were remarkably egalitarian. In each of the contexts considered in the foregoing discussion, high economic growth manifests as a marked increase in building and crafting that distributes the fruits of production to the general public. Put simply, the world’s first cities lacked citadels.

Piketty’s model provides a theoretical resource for explaining this pattern by demonstrating a clear link between high economic growth and lower rates of inequality. In none of the cases we have considered was urbanization organized and driven by a ruling class, at least initially. Urbanization, instead, thrived in association with the production and distribution of diverse forms of wealth among a multitude of groups that were primarily differentiated horizontally, rather than vertically. Egalitarianism was a characteristic feature of the world’s first cities, defying



long-held assumptions about urbanism and exposing the misapprehension that people need elites to build cities.

In archaeology, the myth of elite determinism holds that the powerful use coercive means to convince the masses to cooperate in the production of value. This idea is not so different from neoliberalism's theory of trickle-down economics, which connects economic growth to unequal wealth distributions and the organizational impetus of 'wealth creators.' But, as we have seen, such views run contrary to the mounting evidence, and Piketty, in particular, has amassed an exhaustive amount of data against the view that economic growth is a product of unequally distributed wealth. Unfortunately, many archaeologists continue to emphasize the agency of top-down institutions in their analysis of pristine urbanization, giving the impression that cities essentially arose for no other reason than to service the elite. This leads to a recurring theoretical problem, insofar as an explanation must be sought for why so many people were willing to live in cities at all. For example, in explaining why early cities were socially constructed, Smith (2003) argues that urban populations had to be lured into cities using 'social aspects' because ancient elites would have lacked the political resources necessary to compel people to aggregate in urban spaces. This is essentially the old false consciousness argument, which continues to have a great deal of influence on the archaeological imagination. On the one hand, Marxist evolutionism suggests that the construction of cities is an exploitative strategy of an elite, who manage to trick others into doing things that are against their interests. On the other, the market fundamentalist is obsessed with the canny entrepreneur, whose acquisitive genius is thought to bring about economic prosperity (with inequality as a necessary, if unfortunate, byproduct). Despite their obviously different political pedigrees, both these approaches (ironically) encourage an overbearing focus on elite agency that leaves archaeologists at a loss to explain why people built cities in the first place and how they went about doing so.

In critiques of theories that hinge on elite agency, some archaeologists have advanced the argument that there is an important distinction between the birth of cities and the creation of a stratified elite through exclusionary institutions—what neo-evolutionary theorists have traditionally labeled the state (e.g. Blanton and Fargher 2008; Carballo 2013a; Cowgill 2004; Feinman 2011; Wright 2002; Yoffee 2005). As a result, most archaeological disagreements on this topic surround the validity of the traditional associations drawn between urbanization and state formation (Jennings 2016; Jennings and Earle 2016). In a comparative analysis of urbanization, Justin Jennings (2016) argues that many of the traits associated with civilization—the emergence of cities, increases in settlement scale, stratification and the forging of regional polity through colonization—are actually outcomes of separate, fragmentary, and often, unfinished processes. In an argument that resonates with important critiques of Childe's urban revolution (e.g. Smith 2009), Jennings argues that building the first cities was a tremendously slow and difficult process that met with varying levels of success. Jennings's argument also resonates with the idea that urbanization had to cope with the problem of 'scalar stress' (sensu Johnson 1982), or the difficulties that arise when a large number of

people begin living within a constrained space and start forming the socioeconomic relationships necessary for them to make a living together. This is an important point that we will return to in the final section. Jennings also makes the point that investing political power within an elite was only one possible response to the challenges brought about by scalar stress—one that was not preordained, permanent and could take a great deal of time. In our analysis, Jennings' separation of the processes of urbanization and state formation coheres with Piketty's distinction between economic growth and the increase of returns on capital respectively.

Though the first cities were relatively egalitarian, this should not at all be taken to mean they were ungoverned—a point that resonates with some recent archaeological discussions of large-scale cooperation (e.g. Jennings and Earle 2016) and fiscal provisioning (e.g. Feinman and Carballo 2018). Even if they lacked a ruling class, early cities were still diverse places, and their inhabitants, thus, seem to have created spaces that could act as neutral interstices for social interaction. Clear examples include the exceptional structures and large, empty spaces that were located in between the highly-planned house rows of the Trypillia megasites and the small public structures found between neighborhoods in the Indus cities. Large-scale buildings can also act as spaces for negotiation between the groups who built early cities, especially when access to them was not restricted; a prominent example is the large-scale 'Pillared Hall' that preserved a massive open space at Mohenjo-daro (Green 2022). In the Middle Niger, where no monumental architecture has been reported, open spaces were established and maintained between mounds. In Mesopotamia, the household was metaphorically extended to create shared spaces—temples—that were shared by many different groups in the city and that later became the basis for more hierarchical and coercive political institutions (e.g. Wengrow 1998; Ur 2014). But, in their initial manifestations, temple spaces were often bereft of evidence for activities beyond feeding relatively large groups of people (Pollock 1999). This pattern suggests that common endeavors that involve many social groups are evident at all of the world's first cities. In each of these examples, egalitarian cities produced the common authorities necessary to establish street plans and standardize key elements of material culture, such as seals and/or weights. Indeed, even large-scale irrigation systems largely originate through governance in which exclusionary institutions play no role (e.g. Davies 2009).

### **Egalitarianism and economic diversity**

So far, we have argued that the material remnants left by the Neolithic megasites and the first post-Neolithic cities are a proxy for high economic growth in the past. Although the environmental conditions of each high-growth economy differed—the steppes of eastern Europe, the unpredictable river plains of South Asia, the marshy basin of Southern Mesopotamia, the inland delta of the Middle Niger and the punctuated river valleys of the Andes—all were places where climate, hydrology, topography and ecology intersected with particular human strategies of material and social reproduction, prompting the production of more goods per person.

At the same time, the evidence suggests that this growth in wealth was not highly concentrated in particular social groups and that acquisitive elites were therefore largely absent.

Subsistence production is, of course, fundamental to economic growth, insofar as materializing labor in the form of food is a prerequisite for all other forms of economic activity. However, it should be noted that the evidence does not support the idea that the earliest high-growth economies were based on agro-pastoral monopolies that crowded out other subsistence strategies like hunting, fishing, arboriculture and horticulture. Although the production of high-calorie cereals like wheat, barley, rice or millet comprised increasingly larger portions of urban economies over time, the food economies of the world's earliest cities are inevitably described as flexible or diverse. The idea that the emergence of urbanism relied on vast fields of irrigated wheat or maize is, thus, something of a myth.

On this point, consider that the Trypillian megasites emerged in one of the most agriculturally productive regions in the world. If you are growing wheat and barley in a dry-farming context, without modern fertilizers and pesticides, the soils of Ukraine, Moldova and Romania offer perhaps the most optimal environment to be found in all of Eurasia. Today, much of Ukraine's farmlands can produce 2.32 tons of wheat per hectare, a level of productivity rivaled only by the Great Plains of North America (FAO and IIASA 2023). Though this figure is based on today's environment, the region's reputation as an historical breadbasket goes back to at least the 1st millennium BC when Greek colonists started to import wheat from the Black Sea to the Aegean (Ascherson 1995). It is therefore no surprise that the unrivaled agricultural productivity of Ukraine gave the world some of its earliest high-growth societies—the megasites—following the adoption of Neolithic technologies. And yet, the relative proportion of high-calorie cereals in the Tripillian economies was surprisingly small. The palynological record indicates that plants associated with fallow fields or cereals comprise only a small proportion of the environment surrounding the Trypillian sites, with grasses useful for pastoral production and tree pollen apparent in far greater abundance (Albert et al. 2020). Wild plants typically comprise a large proportion of most of the Tripillian macrobotanical assemblages (Dal Corso et al. 2019).

Likewise, all forms of initial urbanization were based on a constellation of different subsistence production practices that involved both the production of plants and animals in place, animals through nomadic transhumance and hunting. In Northern Mesopotamia, “no single agricultural regime dominated; instead flexibility and variety were employed to reduce risk” (McMahon 2020: 301). Early agriculture in Neolithic Anatolia drew on a wide range of crops and revealed patterns in land use that would have favored caprid production (Marston 2017). And even as domesticates comprised an increasing proportion of Mesopotamia's economy, Zeder (2008) has noted that in the earliest days of urbanization, wild animals comprised around half of the protein consumed. A wide range of subsistence practices also characterizes the inland deltas of the Middle Niger (R. J. McIntosh 2005) and surrounding regions. Cropping patterns evident in archaeobotanical records indicate that Indus farmers sometimes produced two staple crops a year along with dozens of additional plants from the very beginning of the region's archaeological

record (Madella and Fuller 2006; Petrie and Bates 2017; Petrie et al. 2017; Weber 1999). Such diversification seems to have been associated with high economic growth and may therefore have been a contributory factor in the initial impulse to urbanization. In the high-growth economies of the world's first cities, people even sometimes eschewed the most productive economic activities from a caloric perspective, focusing instead on increasing the range of different foods they could grow and eat, implying that diversification was often more desirable than sheer productivity.

Interestingly, where we find persistent egalitarianism over periods of many centuries, there seems to have been a concerted desire to maintain highly diverse subsistence strategies (and a concomitant aversion to monocropping). In the Indus, pre-urban communities began producing an exceptionally wide range of crops about a millennium before they built cities. Crop diversity was maintained over the course of urbanization and de-urbanization (Petrie and Bates 2017; Petrie et al. 2017). Similarly, over the course of the Trypillian megasite phenomenon, it seems that subsistence patterns did not really change (Chapman 2017). Moreover, despite the apparent growth in settlement size, the Trypillia megasites appear to have had relatively minor environmental impacts (Albert et al. 2020; Dal Corso et al. 2019)—a pattern that contradicts modern assumptions about the impact of population agglomeration. Just as high-growth economies thrive on and sustain diverse subsistence practices, they diversify every other aspect of economic life in egalitarian cities. They expand horizontally into many different areas of production, rather than emphasizing just those that generate returns for a particular class.

Moving from subsistence production to craft production, we can see a similar emphasis on diversification. While the traditional argument holds that the degree of craft specialization in any given society positively correlates with social stratification (e.g. Brumfiel and Earle 1989), evidence for craft production and the distribution of craft objects regularly occurs outside of contexts of elite control (e.g. Costin and Wright 1998; Flad and Hruby 2007; Roux 2003). Indeed, a better term for elite control over artisans with specialized knowledge and skills may be craft monopolization, in which a handful of elaborate artifacts are restricted to elites via sumptuary practices. However, what if a wide range of specialized goods were not restricted to elite consumption? This is, in fact, what we see in many of the first cities, perhaps best described by a term like craft 'polypoly.' In craft polypolies, labor becomes highly specialized, but the many kinds of craft objects produced are nonetheless dispersed widely among ordinary households.

We argue that the earliest high-growth economies were such polypolies. Within a craft polypoly, it is necessary for people to produce goods for a large community of other people and consume goods and resources provisioned by other people. Maintaining social relations between such a wide variety of different kinds of specialists required new rules for interaction; namely, rules for interacting with strangers. This phenomenon has been described in modern cities by the urban activist Jane Jacobs (1961, 1970), who argued that cities provided spaces in which people could safely interact with—and learn from—people very different from themselves. For us, this would mean interacting with larger numbers of people engaged in forms of production with which you are unfamiliar. This cross-fertilization of

economic activities helps explain why cities—or perhaps high growth economies more generally—can so often generate new technologies and wealth (Fletcher 1995; Johnson 1982; Miller 2007; M. E. Smith 2014, 2019; M. L. Smith 2014; Trigger 2003). Indeed, some social scientists have theorized that, when enough people aggregate, settlements become ‘social reactors,’ generating ideas much faster than less-densely connected non-urban environments (Bettencourt et al. 2007, 2013; Ortman and Lobo 2020; Ortman et al. 2016). While the aggregation of people and resources within constrained locations certainly plays a role, we suspect that it is high economic growth driving this well-attested material effect.

Deteriorating environmental conditions may reduce economic growth, prompting people to emphasize economic sectors that buffer against risk. These kinds of economic changes may be a defensive mechanism, a strategy for sustaining key activities—like those surrounding subsistence—in response to environmental decline. While tendencies such as monocropping can lead to gross increases in material productivity through economies of scale, it is also strongly associated with environmental degradation, such as salinization in both Mesopotamia and the Indus. As Indus people left their egalitarian cities, some communities appear to have favored millet and rice, which were more reliant on summer rainfall (Petrie and Bates 2017; Petrie et al. 2017). This novel emphasis on different foods in the Post-Urban phase likely indicates a declining rate of economic growth, and thus, pressure to emphasize a particular crop species. However, mono-production can also result from efforts of proto-elites to capture returns. It is worth noting that, as temple institutions increased their demands for staples after a millennium of egalitarian urbanism, Mesopotamians farmed ever more extensive (and less productive) tracts of land (Styring et al. 2017). In Gujarat, where Indus communities maintained cultural distinctions from local pastoralist specialists and interacted more with the newly inegalitarian societies of Early Dynastic Mesopotamia, they appear to have provisioned small but highly focused monocraft-production outposts, like Bagasara (e.g. Bhan et al. 2004). This narrowing of the economy and focus on a particular sector is a response to a declining rate of economic growth. It increases dependency, reduces alternative paths to sustenance, increases risk burdens and creates pathways to exploitation. It is no surprise, then, that Gujarat is where Indus communities may have experimented with inegalitarianism, as evidenced by ostentatious tombs (Green 2021). Dependence on a narrow range of economic activities can reinforce declines in equitable economic growth. This is particularly so when a restricted subset of individuals can draw extractive returns from a more controllable economic activity; in the classic Childean model of urbanization, rulers and their institutional administrators were well positioned to extract labor in the form of taxes, or interest-bearing loans.

### **High economic growth in deep history**

The first cities emerged in contexts typified by high levels of economic growth, and these pristine urban societies seem to also have been largely egalitarian in terms

of their social structure. In our view, following Piketty, the relationship between rapid growth and a lack of wealth stratification should be understood as a causal one. High levels of economic growth seem to suppress the stratification of wealth, implying that, when large quantities of new goods and resources are produced across many different sectors of society, they are inherently difficult to restrict. It takes time for an aspirant ruling class to create the social, political or legal mechanisms necessary to sustain capital accumulation (claims on the product of others' labor) as well as to put in place the required systems for its enforcement. Because the forces of economic growth are distinct from returns on capital, many societies were able to generate substantial and widely distributed aggregations of goods and resources without allowing the rights to them to become concentrated in a restricted number of hands. Ensuring the smooth collection of returns is a stronger imperative for the ruling classes than the facilitation of economic growth, which creates a tendency for elites to try and develop monopolistic rents. High levels of economic growth are, thus, all things being equal, a force for egalitarianism. The degree to which an economy is diversified also seems to be relevant here. In other words, the more distinct domains in which productivity is occurring, the more elaborate the mechanisms needed by elites to establish relations of capital (which, in turn, drives social stratification).

In this chapter, the focus has been on archaeological contexts in which high levels of growth and socioeconomic egalitarianism are combined; namely, Neolithic megasites and post-Neolithic cities. In all these ancient contexts, the growth of the economy outpaced the growth of capital. In the next chapter, we turn to a very different state of affairs—where the growth of capital is greater than the growth of the economy as a whole. These were societies typified by the opposite conditions discussed in the present chapter: high levels of inequality and low levels of productivity. Rather than cities, the term we will use for these latter societies is 'citadels.'

### 3 Citadels

#### The low-growth birth of stratified economies

If archaeological evidence from the world's first cities reveals a conspicuous level of egalitarianism—which, we have argued, is tied to the effects of rapid economic growth—what about the other side of the coin? In this chapter, we consider the other implication of Piketty's equation: that wealth inequality rises in contexts of low economic growth. We argue that, just as some Neolithic economies had high economic growth that produced megasites, other ancient societies had lower rates of economic growth, driving the rapid emergence of marked wealth disparities. In Chapter 2, we argued that high economic growth yielded cities without citadels. Now, we will examine the growth of capital and the creation of citadels without cities.

The earliest cities appeared in differentiated, often alluvial environments rich in biomass, such as the Indus plain or southern Mesopotamian. These are, of course, regions that would later become the great breadbaskets of the Bronze Age. Interestingly, these same regions had generally been sparsely populated backwaters in the preceding Neolithic, with none of them seemingly having been significant centers for early domestication. However, with the arrival of domesticated plants and animals from nearby highland zones like Anatolia, the Iranian Plateau or Balochistan, the once-marginal alluvial plains were transformed into highly productive landscapes, with populations exploding in dense settlements where vast quantities of new material culture were manufactured. Not only did the alluvium of these environments provide for constantly replenished fertile soils; the riverine axes upon which these early cities lay also served to facilitate trade and communication, with water providing an easy and abundant medium for moving significant quantities of goods between settlements. In global economic terms, the Neolithic peripheries had become the Bronze Age centers.

By contrast, a qualitatively different kind of settlement appeared in regions adjacent to those where people built egalitarian cities, often contemporaneous with their larger counterparts. We refer to these as citadels—settlements that funneled the products of the labor of many to a small subset of people. Recall that, per our definition, capital is the ability to make claims on the wealth produced by others. In that sense, citadels were sites of marked growth in capital, but not so much of wealth in general. Rather than appearing on the fertile and increasingly populous

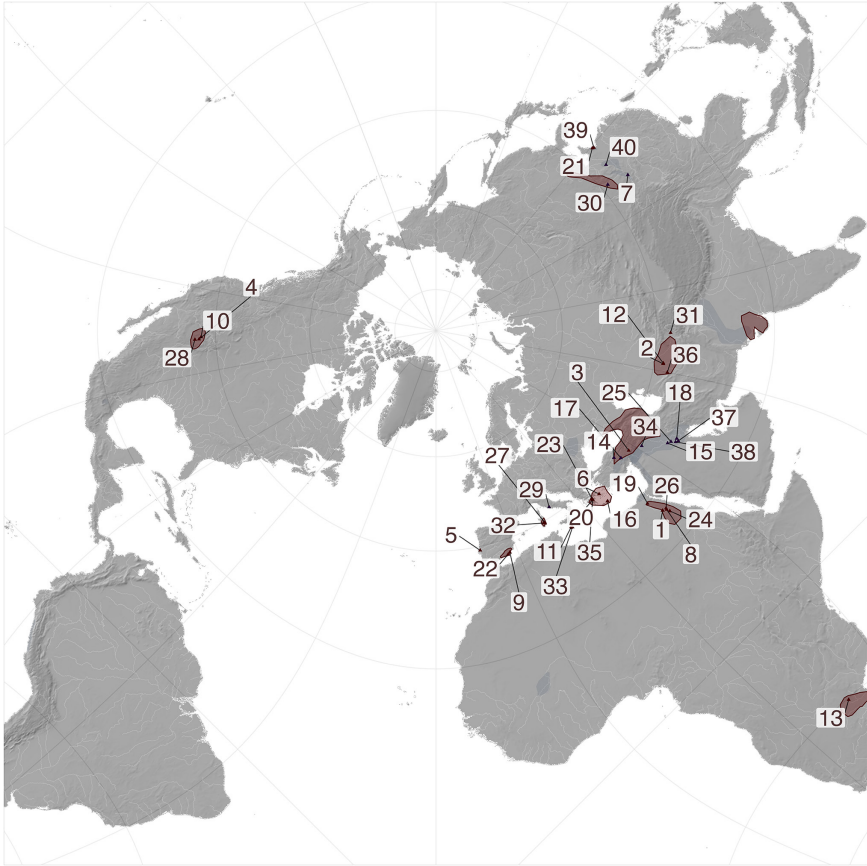
floodplains, citadels were most commonly found in more arid and mountainous terrain, in a wide range of locations worldwide (Figure 3.1). They still occurred within zones amenable to food production but nonetheless lacking the potential productivity of the breadbasket regions. Citadels were extraordinarily varied, which has made it difficult for archaeologists to make sense of them, leading to a range of often unsatisfactory names—societies that have been deemed ‘intermediate,’ ‘middle range,’ and ‘chiefly.’ Compared to cities, citadels are generally more spatially compact, and, by extension, they are usually more demographically modest. That said, sometimes the walls of citadels enclose huge spaces that were not densely occupied, so our comments about scale should be understood as referring to populated areas. The relative sizing and footprints of a range of example citadels is shown in Figure 3.2. In many cases, despite a lack of evidence for substantial population aggregation, archaeologists have tried to characterize the physical remains of citadels as being proto-urban, with the implication that they were on their way to becoming fully fledged cities, even if they never quite made it. Our distinction between cities and citadels explicitly rejects this neoevolutionary relationship. Citadels were not proto-cities, nor were they settlements whose urban development was somehow arrested at an early evolutionary stage. On the contrary, citadels and early cities are the outcomes of two fundamentally different socioeconomic trajectories.

### Defining the citadel

Archaeologically, how does one recognize a citadel? In material terms, citadels often look like fortified palaces *without* a substantial urban settlement surrounding them. In other words, citadels are typically organized around elite residential spaces. This does not mean that non-elite residential spaces are completely absent, since rulers often keep retinues of attached servants, retainers and other hangers-on nearby. But non-elite residential space is almost always limited in comparison to the monumental and palatial structures, at least when compared to the percentage of space given over to the residential occupations in villages or cities. It is, thus, a characteristic of citadels that they are often ‘underpopulated’ with respect to their spatial and material extent (Figure 3.3). In our view, most citadels had populations in the low thousands and seldom, if ever, exceeding 10,000 people. So, in contrast to egalitarian cities, with populations in the multiple tens of thousands and no obvious ruling class, citadels had populations perhaps only a tenth the size of a contemporaneous city but with an evident ruling class.

Citadels are conspicuous for their high levels of wealth inequality, juxtaposed with relatively low permanent populations. This means that citadels should provide clear proxies for the existence of a wealth-monopolizing ruling class, whether it be gold ornaments, exotic feathers or lapis lazuli beads. In citadels, such wealth inequality maps closely (but not always fully) onto political inequality. In other words, there is evidence that these societies had rulers who were able to monopolize most of the wealth (often conspicuously visible in tombs that most excavators





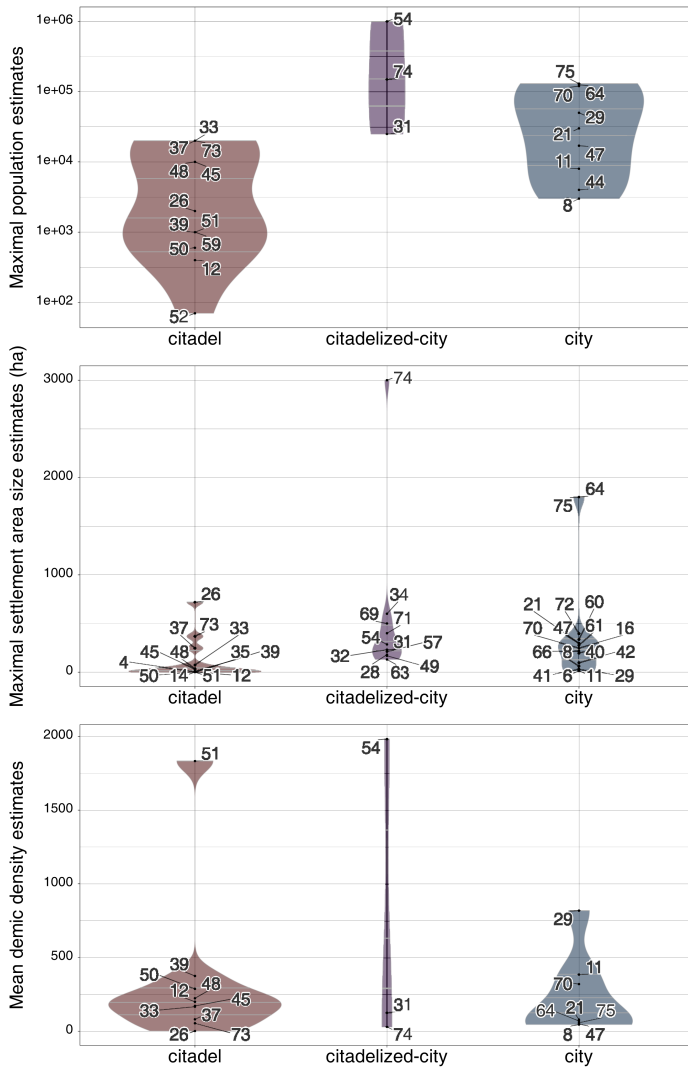
*Figure 3.1* Map of global citadel distribution during Neolithic and Bronze Age periods. 1 = Abydos, 2 = Adji Kui, 3 = Arslantepe, 4 = Aztec Ruins, 5 = Castro di Vila Noca de Sao Pedroe, 6 = Chalandriani–Kastri, 7 = Chang’an, 8 = Deir el-Medina, 9 = El Argar, 10 = Far View House, 11 = Ġgantija, 12 = Gonur Depe, 13 = Great Zimbabwe, 14 = Hattusha, 15 = Kish, 16 = Knossos, 17 = Kültepe-Kanesh, 18 = Lagash, 19 = Lahun, 20 = Lerna, 21 = Lianchengzhen, 22 = Los Millares, 23 = Mycenae, 24 = Nekhen (Hierakonpolis), 25 = Nippur, 26 = Nubt (Naqada), 27 = Nuraghe Arrubiu, 28 = Pueblo Bonito, 29 = Rome, 30 = Shimao, 31 = Shortugai, 32 = Su Nuraxi, 33 = Tarxien, 34 = Tell Brak, 35 = Tiryns, 36 = Ulug Depe, 37 = Ur, 38 = Uruk, 39 = Yaowangcheng, 40 = Yinxu

are comfortable describing with words like ‘royal’ or ‘kingly’). What powers these rulers had was, of course, highly variable, and it is important not to try to construct a one-size-fits-all model. For our purposes, what is important is the tight overlap between political power and economic stratification. Archaeologically, we normally see the political status of such rulers through things like palatial architecture, throne rooms, aggrandizing iconography, elaborate regalia and other insignia of office.



Figure 3.2 Diagram showing comparative spatial footprints of early citadels.

Another recurring feature of citadels is their predilection for extensive storage facilities: rooms upon rooms that seem to have served no other function than the sequestering of large quantities of *stuff*. The typical organization of these storage spaces indicates that the purpose of the citadel was, in no small part, to physically restrict access to the goods held within. We are not talking here about communal or collective storage, but rather, spaces replete with checkpoints, guard posts and gates—various mechanisms for controlling who went in and what they were able to take out. Put another way, citadels are places where lots of wealth was hoarded. In some—although by no means all—citadels, there is scant evidence of craft activities, implying that they were places where wealth was accumulated but not produced. Here, we see a sharp divergence from the egalitarian cities we reviewed



*Figure 3.3* Violin plots showing comparison between estimates of population, settlement size and mean demic density for citadels, citadelized cities and cities. 1 = Abydos, 2 = Adji Kui, 3 = Aguada Fénix, 4 = Arslantepe, 5 = Aşıklı Höyük, 6 = Aspero, 7 = Aztec Ruins, 8 = Caral, 9 = Cardal, 10 = Castro di Vila Noca de Sao Pedroe, 11 = Çatalhöyük, 12 = Chalandriani-Kastri, 13 = Chang'an, 14 = Deir el-Medina, 15 = Dholavira, 16 = Dobrovody, 17 = Downtown Chaco, 18 = El Argar, 19 = El Gallo-La Gallina, 20 = El Mirador, 21 = Erlitou, 22 = Far View House, 23 = Ganweriwala, 24 = Ġgantija, 25 = Gonur Depe, 26 = Great Zimbabwe, 27 = Harappa, 28 = Hattusha, 29 = Jenné-Jeno, 30 = Jericho, 31 = Kish, 32 = Knossos, 33 = Kültepe-Kanesh, 34 = Lagash, 35 = Lahun, 36 = Lerna, 37 = Lianchengzhen, 38 = Liangzhu, 39 = Los Millares, 40 = Maidanetske, 41 = Marroquies, 42 = Mehrgarh, 43 = Mohenjo-daro, 44 = Mojeque, 45 = Mycenae, 46 = Nakbe, 47 = Nebelivka, 48 = Nekhen (Hierakonpolis), 49 = Nippur, 50 = Nubt (Naqada), 51 = Nuraghe Arrubiu, 52 = Pueblo Bonito, 53 = Rakhigarhi, 54 = Rome, 55 = San Lorenzo, 56 = Séchin Alto, 57 = Shimao, 58 = Shortugai, 59 = Su Nuraxi, 60 = Taljanky, 61 = Taosi, 62 = Tarxien, 63 = Tell Brak, 64 = Teotihuacan, 65 = Tiryns, 66 = Tomashivka, 67 = Trypillia, 68 = Ulug Depe, 69 = Ur, 70 = Uruk, 71 = Uruk, 72 = Valencina, 73 = Yaowangcheng, 74 = Yinxu, 75 = Zhengzhou

in the previous chapter—which were all veritable hubs of (highly decentralized) industry. But it is important to acknowledge that some citadels were sites of craft production. Presumably, such variation reflects the different strategies by which citadels sought to control flows of wealth. In some cases, citadel elites were able to create social mechanisms that directed goods from surrounding regions into their palatial centers—probably as tribute payments—meaning that direct oversight of productive activities was not always necessary. In other contexts, the rulers of citadels sought to bring the manufacture of at least some products under their direct supervision. Consequently, it is the concentration of wealth that defines citadels more than any particular spatial relationship to its production. However, we still wish to note the contrast with cities (and megasites) that seem to have been, almost universally, sites of significant manufacturing.

In the following subsections, we will offer a global sample of archaeologically known citadels in order to better substantiate our arguments. This review is intended to be illustrative rather than exhaustive, given the vast number of possible case studies that might have been considered. The most important goal of this review is to draw meaningful contrasts between the urban societies we discussed in the previous chapter, so that the utility of our categorical distinction between cities and citadels is made clear. Although a fundamental aspect of our argument is that cities and citadels lack an evolutionary relationship, the two forms did eventually experience an *historical* convergence—a phenomenon we will discuss in terms of ‘citadelized cities.’

### *The Mediterranean Basin*

The eco-social patterning of the Mediterranean during the Neolithic and Bronze Age (ca. 3500–1000 BC) is strange. Consider the thought experiment: if someone knew nothing about Mediterranean archaeology, but was armed with a Childean model of civilization in mind, where would they expect to find evidence of incipient monumental architecture, social and political hierarchies, fortified palaces and concentrations of wealth? Assuming a basic familiarity with the prehistory of Egypt, Mesopotamia, South Asia and East Asia, one would presumably look to major river valleys capable of supporting agro-pastoral production on a large scale, especially of cereal crops. Obvious candidates in the eastern half of the basin might be the lower Po Valley—or the smaller drainages on the western coast of the Italian Peninsula such as the Tiber. In the west, the great valleys of the Iberian Peninsula, especially the Guadalquivir, the Duero and the Ebro, would probably look promising as well. And yet, all these predictions would be wrong.

Many of the Mediterranean’s earliest and best known agropastoral settlements, instead, occurred in insular contexts—a pattern completely at odds with the traditional expectations of social complexity derived from the rest of Eurasia. And even then, it was not the largest and most fertile island in the basin (i.e. Sicily) that hosted incipient moves toward complexity, but often, the smallest and most rugged islands available. Where islands were not the primary places for precocious developments, we often see relatively arid and mountainous coastal zones taking center stage instead. In current archaeological thinking, such patterns are simply anomalous, with no clear explanation beyond the vagaries of historical contingency. However,

in our theoretical approach, these case studies are reconceptualized as the entirely expected outcome of low economic growth, wherein there is an association between constrained agropastoral potential and the appearance of some of the world's earliest citadels. All of these regions were ones in which a Neolithic package was viable but where the environment nonetheless imposed considerable constraints on the extent of economic growth that could occur. By adapting Thomas Piketty's association of low growth with wealth inequalities, we believe we are able to provide the foundation for a more satisfactory explanation of Mediterranean complexity.

Many of the world's first citadels appeared in the Mediterranean Basin. This was, in part, a result of the region's peculiar geography. The Mediterranean Basin is unusual in that it is an extensive and latitudinally elongated Atlantic embayment that is almost entirely enclosed by continental landmass. Lying between the Sahara, the northern European plain and western Asia—and with a topography shaped by the interactions of the African and Eurasian plates—the Mediterranean is environmentally heterogeneous, consisting of islands, indented coastlines, uplands, interior plateaus and major river systems. Such variation has rendered it highly biodiverse (Rick et al. 2020). The eastern end of the basin overlaps with a core zone of Neolithization (Anatolia and the Levant) and is adjacent to regions where the first egalitarian cities emerged (Mesopotamia). In global terms, the inhabitants of the basin adopted domesticated plants and animals comparatively early (ca. 7000–5500 BC), a transition related to small-scale yet rapid migrations from Southwest Asia and Anatolia and augmented by close interactions with hunter-gatherer-foragers within peninsular interiors (Leppard 2021). The Mediterranean coast, its islands and much of the peninsular interior is dominated by semi-arid or upland environments. It is in these environments in which we see the appearance of the first Mediterranean citadels, rather than in the intersecting alluvial valleys where there was more agricultural potential (the Nile is a special case, to which we will turn later). Although this might seem counter-intuitive, it is precisely what one would expect if citadel emergence is associated with contexts of low economic growth.

The earliest evidence for citadels occurs in the 4th millennium BC. In the eastern Mediterranean, the site of Strofilas, located on the Cycladic island of Andros, offers an excellent example of precocious citadel formation during the later Neolithic (ca. 4500–3200 BC). Strofilas was a fortified settlement on a natural plateau overlooking the Aegean and was densely covered with stone architecture. In addition to the defensive walls, significant energy was devoted to the construction of public architecture, including a large, two-storey building that has been interpreted as a megaron, which is a type of audience hall associated with later Mycenaean palaces (Televantou 2019). Evidence for concentrated wealth is best seen in the cache of metal objects excavated from the site, including 30 bronze items, mainly in the form of weapons, needles and awls. A gold bead has also been excavated at Strofilas, one of only three gold artifacts known from the Neolithic Cyclades (Televantou 2019: 163). It is worth bearing in mind that, in a Neolithic context, such metal objects would have been extraordinarily rare and valuable, in comparison with the subsequent Bronze Age, in which their presence would have been less remarkable. Fortifications, concentrated wealth and monumental architecture with

probable elite associations are all hallmarks of the citadel. However, scale must always be an essential factor in assigning such a label to any settlement. Despite its impressive architecture and artifacts, the inhabited area of Strofilas was only around two hectares (Angelopoulou 2017), making a population of more than a few hundred inconceivable. Although its excavator has used the term ‘proto-urban’ (Televantou 2019) to describe Strofilas—and it is very large in the context of the Neolithic Aegean—a couple of hectares is miniscule in comparison with most ancient cities. Yet, as we will see, this is a recurring pattern in citadels. Their material culture often invites urban comparisons, despite having populations that were village-level, at best.

By around 3000 BC (Arvaniti and Maniatis 2018), in both the southern Aegean islands and the southern mainland, there emerged many more centers with citadel-like characteristics. Both Cycladic and mainland Early Bronze Age sites (ca. 3000–2200 BC) have evidence for substantial fortifications (Renfrew et al. 2012). Sometimes—especially in the Peloponnese—these fortifications surrounded large, multi-storeyed buildings with evidence for feasting activities and some form of proprietary claims over stored resources in the forms of seal stones (Pullen 2011; Shaw 1987; Weingarten et al. 2011). Considered alongside evidence for restricted access to suites of material culture that were associated with ritual activities (Broodbank 2000), such data are strongly suggestive of citadel organization: social hierarchies with wealth disparities yet no settlements on an urban scale. The Cyclades and southern Greece are certainly viable contexts for agricultural communities, but they are by no means the most intrinsically attractive, with productive soils that occupy small and nonadjacent patches and a climate that is rather arid overall. Indeed, the generally late Neolithic colonization of the Aegean uplands and islands (Broodbank 2000; Halstead 2008) suggests that the relative marginality of the region structured the settlement choices of early farmers.

Without altogether discarding the evidence for outside influences (especially long-distance exchange), Aegean citadels appear sufficiently different from Mesopotamian cities that we should look beyond simplistic models of external stimuli to explain their appearance. Moreover, the fact that comparable citadel emergence can be traced in contemporary southern Iberia—far from Mesopotamia or the Nile—suggests that a wider dynamic was at work. The Millaran Chalcolithic (ca. 3300–2200 BC) of southeast Iberia, the most arid area of continental Europe (Chapman 1990: 98–105), features small, fortified settlements surrounded by more widely dispersed rural occupation (Chapman 2008; Lillios 1995). These fortified settlements appear to have housed a degree of craft specialization, especially metallurgical production, and were loci for the consumption of presumably exotic or high-value materials, such as elephant ivory (Schuhmacher 2016). Remarkably, some of this ivory may have been derived from Asian as well as African sources, a testament to truly long-distance connections. As Blanco-González and colleagues (2018) emphasize, the Millaran sites can be interpreted in various ways (e.g. Chapman 1990, 2008; Molina and Cámara 2005), but the archaeological consensus is that Millaran economies formalized unequal access to goods and materials stashed within enclosures, resulting in wealth inequality that is reflected in hierarchies in

both funerary and settlement patterns. Despite claims for statehood (Molina and Cámara 2005), the data suggest that these sites represent hierarchical societies with acute concentrations of social power but with a demographic scale insufficient to qualify as urban.

This same pattern extends to Los Millares itself (Figure 3.4a-c). The contemporaneous existence of apparently rather different social forms—the large, ditched, yet unfortified sites in the Guadalquivir Valley and in comparatively less arid southwestern Iberia, such as Valencina de la Concepción (García Sanjuán et al. 2017)—hints at subtly distinct ecologically mediated possibilities in different parts of the peninsula, although the latter are challenging to fit into a trajectory of urban development (García Sanjuán et al. 2017). Both these traditions of settlement, of course, were brought to something of a halt by substantive climatic shifts in the terminal 3rd millennium BC, perhaps hinting that the social systems they represent were predicated on a finely balanced intersection between specific subsistence strategies and (winter) rainfall conditions (Blanco-González et al. 2018; Schirrmacher et al. 2020).

### *East Asia*

The Central Plains (Zhongyuan) of China are reasonably well known to archaeologists who work outside the region, and it is here that we find the major centers of the Chinese Bronze Age that are situated along the valley of the Lower Yellow River. Such sites are frequently discussed in comparative accounts of state formation and urbanism (e.g. Liu 1996). Moreover, the scholarship on early China has traditionally been structured around textual traditions of dynastic succession and has, consequently, focused on the Central Plains as the point of genesis for these traditions (Campbell et al. 2021; von Falkenhausen 1993). The important sites at Erlitou, Zhengzhou, and ultimately, Anyang—the latter very likely an example of a citadelized city, a settlement form we will discuss in detail later—are often interpreted as associated with the Xia and Shang dynasties described in later historical accounts. For Anyang, at least, such associations are supported by epigraphic evidence in the form of divination texts. Earlier settlements along the Middle Yellow River and Wei and Fen valleys (e.g. Taosi) have often been viewed as antecedent ‘chiefly’ societies that, when scaled up over the subsequent millennium, resulted in the unambiguous states of the Late Shang (e.g. Liu and Chen 2003). Our goal here is not to challenge the central importance of Erlitou and Zhengzhou in the historical derivation of the enormous polity centered on Anyang—itself a settlement with a population almost certainly numbering in the several tens of thousands (Flad 2018), and probably more. Rather, we wish to emphasize how the latest evidence reveals both the emergence of citadels as well as trajectories of city-citadel convergence.

Recent scholarship has emphasized not only the diversity of social organization in northern and central China in the Late Neolithic and Bronze Age (ca. 3000–1000 BC) but also the wide geographical distribution of this diversity (Zhang et al. 2019). Indeed, it is increasingly clear that the power centers of the 3rd millennium BC did



*Figure 3.4* Iberian Chalcolithic Millaran citadel at Los Millares: (a) overhead shot of Los Millares fortifications, esp. Main gate; (b) landscape shot of Los Millares fortifications, esp. Main gate; (c) reconstruction shot of Los Millares fortifications, esp. Main gate



not cluster exclusively in the Central Plains. At Liangzhu, along the lower Yangtze, material wealth—most obviously in the form of elaborate jades—was apparently dispersed unequally amongst the population of the fortified town (Renfrew and Liu 2018). The early appearance of contextually small, fortified settlements with evidence for intrasite hierarchies expressed in funerary rites is also evident from the middle Yangtze (Shan et al. 2021). These fortifications may have served a further function as flood defenses, underscoring how otherwise productive riverine contexts can, under certain conditions, slip into marginality. Liangzhu itself exhibits substantial evidence for complex systems of hydrological management—presumably, in part, oriented towards wet rice production (Renfrew and Liu 2018). Some 3rd and 2nd millennium sites situated at the apices of comparatively complex settlement systems were not, however, limited to highly productive agrarian environments. The Shandong coast, for example, hosted a series of large—and probably independent—centers during the Longshan period. Sandwiched between the uplands and the sea, these sites, including Yaowangcheng and Lianchengzhen, have been interpreted as the centers of discrete polities (Feinman et al. 2019). Their overall size indicates a degree of population accumulation, and excavations suggest each site exercised some control over the production and circulation of prestige material culture, including ceramics and jades (Underhill et al. 2008). Even ignoring the late 2nd millennium BC Sanxingdui phenomenon, it is now the case that the Chinese Late Neolithic was substantially more diverse than had been appreciated until comparatively recently; and that the Central Plains urban tradition represented only one means of imagining social power in prehistoric China (Campbell et al. 2021).

All this is to say that our understanding of ancient China is undergoing radical revision as a result of an ever-rising flood of excavation and survey data that have been collected since 2010. As a result of this influx of new information, it is dangerous to make any meaningful claims, lest they become almost immediately out-of-date. Nonetheless, we will venture some discussion of the recent and remarkable challenge to the Central-Plains-dominated model that is coming from the archaeological sites of the northern Loess Plateau located within the Ordos Loop. Of particular importance is the site of Shimao situated on the loess uplands around the Tuwei River, close to the Mu Us Desert (Jaang et al. 2018; Sun et al. 2018). Occupied roughly between 2300 and 1800 BC, the site was a walled settlement. It had an outer wall encompassing over 400 hectares, although it is far from clear whether even a majority of that area was occupied by buildings and other infrastructure, as we discuss later. The inner and outer walls of Shimao were traversed via elaborate monumental gateways, one of which has enigmatic symbols inscribed on its paving stones (Guo et al. 2020). The monumental East Gate is associated with six caches of human skulls, the majority belonging to young females, and its interior was decorated with a polychrome mural. The central component of the site, within the inner wall, is a loess hill modified into a stepped pyramidal structure, associated with evidence for metal production (probably bronze casting) and the remains of exotic faunal products—notably, alligator skins (a species endemic to the lower Yangtze, and thus, evidence of very long-distance exchanges). The interior wall also encloses a cemetery from which a series of jade items have been recovered (Figure 3.5a-d).



*Figure 3.5* Shimao Enclosure citadel: (a) jade from East Gate (Sun et al. 2018); (b) jades embedded in East Gate (Jaang et al. 2018); (c) Shimao burial, with jade bracelets (Sun et al. 2018); skull pit (Jaang et al. 2018).

As is generally true of walled settlements from Neolithic and Bronze Age China, we have no real sense of how densely occupied they were, and by extension, how large their populations might have been. This is frustrating, since demographic scale is a key factor in our distinction between citadels and cities. For Shimao, surface scatters of ceramics suggest that only the space inside the interior wall (less than 210 hectares) was occupied by a substantial residential population (Sun et al. 2018), and this area was not fully given over to houses. There were, for instance, also significant cemetery zones located within the bounds of the inner enclosure. We suspect that, despite the footprint of the outer wall, Shimao will ultimately prove to have had a relatively small residential population on the order of a few thousands; but only future research will tell. Albeit provisionally, we argue it approximates a citadel—a settlement fortified with an elite presence but limited evidence for dense or otherwise urban levels of occupation. Clearly, in a global perspective, this is a spatially large example of a citadel; but, when contextualized with the massive sites of the Yellow River Valley further east, we should be somewhat less impressed by the sheer scale of the area demarcated by the outer wall.

In the arid loess upland in the northern extremity of Shaanxi, on the fringes of the Mu Us Desert, a complex system of fortified settlements developed in the 3rd millennium BC. Perhaps occupying the apex of this system from around 2300 BC, Shimao was clearly home to a group that could exert control over substantial pools of labor, and probably, over associated territory. It could access and consume high-status non-local materials, including jade and alligator skins, while the resident's ideological interests extended to human sacrifice. It is clear we are either dealing with substantial wealth disparities within a community or between communities, or more probably, both; and this in a context that is, by comparison to the lower valley of the Yellow River, agriculturally marginal.

Shimao did not exist in isolation. Regional survey indicates the existence of other, probably contemporary, walled settlements in the Ordos Loess (Jaang et al. 2018), although the precise relationship between these smaller-scale settlements and Shimao is unclear. Nor is Shimao and its immediate hinterland the only evidence for more complex modes of settlement north and west of the Central Plains. Recent research (see Jaffe et al. 2022) suggests the existence of a broad swathe of hilly and semi-arid territory, reaching from northern Shaanxi northeastwards along the Inner Mongolian border, in which fortified, hilltop sites dating to the 3rd and early 2nd millennia—some on the order of ca. 150 hectares—are widely distributed. Excavation at some of these, such as Sanzuodian (Shelach et al. 2011), has suggested their inhabitants had a serious interest in robust defense and landscape control. Too small to be cities and yet home to aggrandizing elites, all of these sites fit comfortably within the citadel model.

Perhaps the most important aspect of Shimao is that its archaeological record provides the earliest evidence for many of the hierarchical practices and structures that would later become normal in the great (citadelized) cities of the Central Plains. Ritual human sacrifice overseen by elites is one of the defining features of the Central Plains Metropolitan Tradition, which reached its crescendo with Anyang, yet is also evident at Erlitou around 1800 BC (Campbell 2018: 81). The

clear evidence for the institutionalization of human sacrifice at Shimao several centuries earlier suggests that the Central Plains may not have invented such practices, but in fact, adopted them from adjacent regions like the Loess Plateau. Consider also the pyramidal complex at the center of Shimao, which reached an imposing 70 meters in height and extended over 24 hectares (albeit, a modified landform and not fully anthropogenic). Not only were human sacrifices incorporated into its walls; thousands of jade insets were also visible, and the stone facades were decorated with elaborate carved images (Jaang et al. 2018). This structure is far more convincingly palatial than the 12-hectare complex of rammed earth and wood found at Erlitou, which largely owes its palatial label to models derived from later Chinese cities.

The myth of elite determinism holds that, the more people that are crowded into a space, the more hierarchical must be the social institutions that are needed to manage them. From such a perspective, the Central Plains—the great urban core of ancient China—would thus be the obvious place to expect hierarchical institutions to first appear in the regional archaeological sequence. For a long time, archaeological evidence appeared to confirm this expectation. But this was only because the Central Plains was where everyone was looking first, conditioned by a geographical paradigm derived from later textual sources, to the detriment of other regions. It is now clear that the story is much more complicated than once thought, and the Loess Plateau exhibits early and substantive evidence for hierarchies when compared to the Lower Yellow River (Jaang et al. 2018). This might be a problem for older paradigms, although it aligns well with the theoretical framework we develop here. All else being equal, hierarchy should appear in regions of marginal agricultural productivity before it occurs in breadbasket regions that can support huge populations and host great cities.

### *Oxus, the Indus fringe and southern Africa*

We have focused our attention thus far on the Mediterranean basin and China northwest of the Central Plains in the 3rd and 2nd millennia BC. Not coincidentally, both contexts are proximate to, but distinct from, the great cradles of plant and animal domestication in Eurasia. We now wish to focus on the enormous space that exists between these two early zones of domestication and urbanization. Excepting the Indus River Basin itself, much of this area might be considered relatively marginal from the perspective of a Neolithic farmer but was, nonetheless, implicated in early contacts between those regions in which large-scale agropastoral systems that incorporated wheat, barley, rice and millet flourished—and provides clear-cut evidence for the emergence of citadels.

In the vast and arid expanse north of the Kopet Dagh-to-Hindu Kush line, along alluvial fans derived from perennial rivers flowing into and through the Karakum Desert, a number of Neolithic villages transformed into Bronze Age citadels. Scholarship of this region has often emphasized the ‘proto-urban’ status of sites such as Altyn Depe or Namazga Depe along the Kopet Dagh piedmont zone (e.g. Masson 1988). It is something of a recurring irony of archaeological writing that societies described as proto-urban almost never actually became cities. Rather than seeing

these sites as trapped in a perpetual state of arrested development, we interpret them as places on a completely distinct trajectory; as citadels, in other words, rather than cities that failed to reach maturity.

Consider Altyn Depe as a case in point, located in what is now southern Turkmenistan. The site extends over 26 hectares, dates to the final half of the 3rd millennium BC and exhibits evidence for monumental architecture and elite housing (Masson 1988). Exotic materials, especially ivory from South Asian sources, have been found as body decorations in various tombs at Altyn Depe (Masson 1981a). Sites like Altyn Depe were contemporaneous with the Indus cities, and clearly, had contacts with them, demonstrated not only by the ivory artifacts but also the presence of Indus seals (Masson 1981b). We might note that, despite being less than a twelfth the size of Mohenjo-daro, there is more mortuary evidence for social hierarchies at Altyn Depe than at any of the Indus cities (see Green 2021). Indeed, the contrast between the large, unfortified and egalitarian settlements of South Asia, on the one hand, and the small, fortified, hierarchical centers of Central Asia, on the other, is exemplary of our categorical distinction between citadels and cities. Perhaps the only major point of similarity is the evidence for considerable craft production in both cases. Altyn Depe, like many of the Indus sites, seems to have been a significant center for copper metallurgy as well as incorporating a number of ceramic and lapidary workshops (Masioli et al. 2006).

Both contemporary and later Bronze Age developments in the region also point to citadel formation, most notably in the striking sites of the Bactria-Margiana Archaeological Complex (BMAC; also sometimes called the Oxus Civilization), roughly falling in the date range of 2400–1600 BC (Lyonnet and Dubova 2021). Gonur Depe, one of the most well-studied BMAC sites, lying far out in the Murghab Delta, represents a concentration of material flows and ritual-political power that nonetheless crystallized at a conspicuously small demographic scale. Archaeologically, we can see typical citadel attributes at Gonur Depe in the prodigiously fortified palatial complex (replete with polychrome mosaic decoration) and the presence of an elite burial ground, the larger graves of which involved interment of wheeled vehicles in hypogea, along with probable human and animal sacrifice and accompanying items of ivory, gold and silver deposited as grave goods (Dubova 2021a, 2021b). As with most other Bronze Age palatial centers in Central Asia, Gonur Depe was relatively small; 50 hectares probably represents a maximal footprint, if we consider the total extent of Gonur North, Gonur South and the Large Necropolis together. Rainfall patterns may have differed here in the Bronze Age. Such climatic changes notwithstanding, Gonur Depe lies far into a sand-locked, alluvial fan in a liminal zone next to a desert—an environment with significant constraints on economic growth under agricultural conditions.

Gonur Depe is not an isolated example and comparable sites include Adjı Kui and Ulug Depe (Bendezu-Sarmiento and Lhuillier 2016; Rossi-Osmida 2011), both of which are associated with rich necropolises containing some remarkable elite burials, including, at the latter site, a Namazga V burial (i.e. terminal 3rd millennium BC) complete with a set of lathe-turned alabaster vessels (Figure 3.6a-c). In general, there was evident interest on behalf of BMAC residents in controlling and consuming the outputs of specialized craft production that utilized high value



*Figure 3.6* Late Bronze Age Bactro-Margiana Archaeological Complex (BMAC) citadel at Ulug Depe: (a) alabaster grave goods; (b) alabaster grave goods; (c) gold, lapis, agate and carnelian grave goods (Bendezu-Sarmiento and Lhuillier 2016).

materials, accompanied by hints of interest in sartorial ostentation, as demonstrated by the ‘Bactrian Princess’ figurine type (Vidale 2017). We argue that the evidence produced by investigations at these sites reveals the efforts of a small group to curate local hierarchies via connections to broader Bronze Age networks of power, both to the northern steppes and southern links to Iran, the Indus and Mesopotamia beyond.

Excavations at the BMAC site of Togolok are a reminder that drawing absolute distinctions between agriculturalists and pastoralists is unlikely to be particularly helpful (Rouse and Cerasetti 2018). However, in the context of our broader discussion, the comparative environmental situation of the BMAC citadels—and their overall scale—should not escape us. In contrast with contemporaneous urban forms in Mesopotamia or the Indus, these sites represent globally small (if contextually large) concentrations of population—less cities but more like fortified storehouse-palace-cemeteries. We also note the relative absence of technologies of governance (especially writing), excepting seals that probably were used to signify ownership. These citadels developed in a mid-3rd-millennium environment that, if not marginal for cereal agrarianism, was certainly spatially limited and dependent on delicate balances between fluvial systems and the Karakum itself. Once again, on the fringes of the greater central Asian arid zone, we see spikes in unequal access to social and material goods, represented by fortified centers of consumption and display, co-occurring with environmental niches that should preclude the emergence of big demographic battalions coagulating into cities.

Central Asia lies just beyond the uttermost edge of the Indus River Basin, discussed in detail in the previous chapter. On the basis of the foregoing evidence, however, and considering that the Indus riverine system is flanked by environments that are less well suited to large-scale cereal agriculture, we might expect the urban hinterland of the Indus to be surrounded by qualitatively different types of settlement—smaller in absolute terms yet with evidence for substantially unequal distributions of material wealth.

The archaeological record is lacunose, yet there are hints that this expectation is not misplaced. In Balochistan, to the west, the 3rd- and early-2nd-millennium BC Kulli complex (Possehl 1986) appears to represent a settlement tradition with clear links to the growing Indus cities yet manifested on a much smaller scale. To the east of the Indus River Basin, beyond the Thar Desert, late-3rd- and early-2nd-millennium political and economic dynamics are harder to parse. In contemporary 3rd-millennium eastern Rajasthan, sites belonging to the Ganeshwar complex are, from an Indus perspective, highly idiosyncratic—centralized yet smaller in scale and with an apparent deep concern with copper metallurgy, including copper products associated with personal adornment (Rizvi 2015, 2018). At Gilund in the Mewar Plain to the southwest, a site that sits at the apex of local settlement hierarchy (within the Ahar Banas complex) is nonetheless, in regional terms, quite limited in scale (also perhaps 25 hectares; Shinde et al. 2014). Long-distance stylistic connections are evident, however, in a seal cache at Gilund (Shinde et al. 2005). There is also evidence for an elaborate storage structure at Gilund, within which a surprising number of stamp seals were found (Ameri 2014). Like Balochistan,

parts of Rajasthan (excepting the Thar) were not sufficiently arid to preclude agropastoral settlement during the 3rd millennium BC; but dissected topographies, combined with less plentiful or even less predictable sources of water, spurred the development of citadels.

The archaeological record of Gujarat in its Indus phase is a case-in-point. Gujarat is distinctive in that there is substantial evidence for interaction between communities that produced material culture similar to the large Indus cities of the Indus Basin and local pastoral communities called ‘Sorath Harappans’ (Chakraborty et al. 2018; Chase et al. 2014a, 2020; e.g. Possehl and Herman 1990; Rajesh 2011). The region also includes the Indus city Dholavira (Bisht 2015). Dholavira was notably smaller than Harappa and Mohenjo-daro, both of which boasted high economic growth for at least a portion of their occupation. By contrast, the inhabitants of Dholavira had to invest a substantial quantity of labor to support agropastoral production. Huge reservoirs were hand-chiseled into the bedrock surrounding the city (Bisht 2005, 2015), presumably capturing water to provision plants and animals. Indeed, a range of socio-environmental studies reveals that Gujarat placed substantial demands on agropastoral communities, who combined a wide range of drought-resistant millets and animal strategies to ameliorate environmental challenges (Weber 1999; Madella and Fuller 2006; Conesa et al. 2015, 2017). The challenges imposed by this exacting setting may perhaps explain why Dholavira’s central district was highly fortified, to the extent that its excavators described it as a “castle” within an “acropolis” (Bisht 2015: 78). The agropastoral marginality in comparison to the plains of the Indus River Basin may have subjected Gujarat’s Indus communities to lower economic growth, prompting experimentation with what may be South Asia’s first citadelized city.

This broader pattern is underscored by the tiny sites of Bagasara (e.g. Bhan et al. 2004) and Kanmer (Kharakwal et al. 2007), which seem to have been loci for craft production (notably, of lapidary items and shell bangles). Interestingly, both sites boasted massive stone walls surrounding huge caches of craft materials, suggesting a citadel-like interest in controlling and concentrating wealth. The Gujarati Plain itself and the uplands of the peninsula are not as arid as, for example, Balochistan; but we might still expect the organization of the landscape to present different agro-economic opportunities than in the Indus heartland. The hints at more hierarchical forms of organization in the Gujarati Indus sites are telling—a divergence probably linked to the region’s atypical agropastoral environment (relative to other Indus regions).

To conclude the present section, we turn to southern Africa. The Late Iron Age (ca. AD 1300–1840) of southern Africa provides another context in which citadels appear to have emerged independently of any other urban tradition (Chirikure et al. 2013). The archaeological evidence from the Shashe-Limpopo Basin and its environs includes indicators of increasing levels of socioeconomic stratification from around AD 1150, with cattle herds providing the primary form of congealed wealth (Huffman 2009). Monumental architecture in the form of dry-walled stone enclosures is, perhaps, the most distinctive characteristic of what is called the Zimbabwe Culture (the term *zimbahwe* means royal palace in the Shona language). The site of



Mapela Hill may offer the earliest evidence yet known for elite stonewalled constructions in the region, making it a possible progenitor of the Zimbabwe Culture (Chirikure et al. 2014). Evidence for concentrated and stored wealth is considerable at Mapela Hill, including at least six cattle *kraals* (corrals) and a cache of glass beads numbering in the many thousands (Chirikure et al. 2014). In such contexts, glass beads were valuable forms of exotica imported through connections with the Indian Ocean trading networks. By around AD 1220, the nearby site of Mapungubwe had emerged as perhaps the preeminent political center in southern Africa. Here, we find some of the earliest evidence for indisputably royal burials, located on the hilltop portion of the settlement, which is also where most of the elite stonewalled residences were established (Huffman 2009). At least three individuals were interred there with significant quantities of gold artifacts (Steyn 2007), including in one instance an object that resembles a scepter (Figure 3.7). The spatial coincidence of aristocratic burials, monumental residences and concentrated forms of wealth all point to settlements that likely conform to our concept of the citadel.

By the AD 1300s, it seems that Great Zimbabwe had become the most important center of the Zimbabwe Culture, eclipsing other sites like Mapungubwe or Mapela Hill. A variety of exotic ceramic imports, such as glasswares from the Arabian Peninsula, alongside Chinese porcelains and stonewares, have been identified at the site, indicating that such wealth was consistently accumulated by the people who lived in the elite enclosures (Chirikure and Pikirayi 2008: 988). The site also appears to have been a center for several kinds of craft production. Notably, there is evidence for at least one furnace for iron smelting and another for gold melting at the site (Chirikure and Pikirayi 2008: 986).

The scale of the stonewalled architecture found at Great Zimbabwe is remarkable, with the tallest structures reaching some 11 meters in height (Figure 3.8a, b). The total area of the site is estimated at 720 hectares (Chirikure et al. 2017), which is obviously very large and might, at first glance, suggest a city. But the crux of the matter is the site's estimated population. The traditional (maximum) estimate for the size of the permanent population at Great Zimbabwe was around 20,000 people (Huffman 1996), which would place it on a similar scale to a typical Bronze Age city in Eurasia. However, the most up-to-date estimates, taking into account the density of material culture and the local ecological constraints, suggest that the population never exceeded 2,000, and perhaps, may have been significantly lower (Chirikure et al. 2017). Citadels represent such extreme concentrations of wealth and monumental architecture that it often appears like they must have been associated with huge demographic agglomerations—leading to exaggerated population estimates that are later subject to downward revision. But, as we have argued throughout this chapter, the combination of lots of stuff and relatively few people is a hallmark of the citadel form. With respect to eco-social patterning, the Shashe-Limpopo Basin and the region towards the Save River are semi-arid. The emergence of citadels in this region falls largely within the Medieval Warm Period, an exacerbation in extant dry conditions that might have been expected to place stress on water-intensive cattle pastoralism regimes. As in other contexts of citadel formation, the Zimbabwe phenomenon seems to have emerged in an environment in

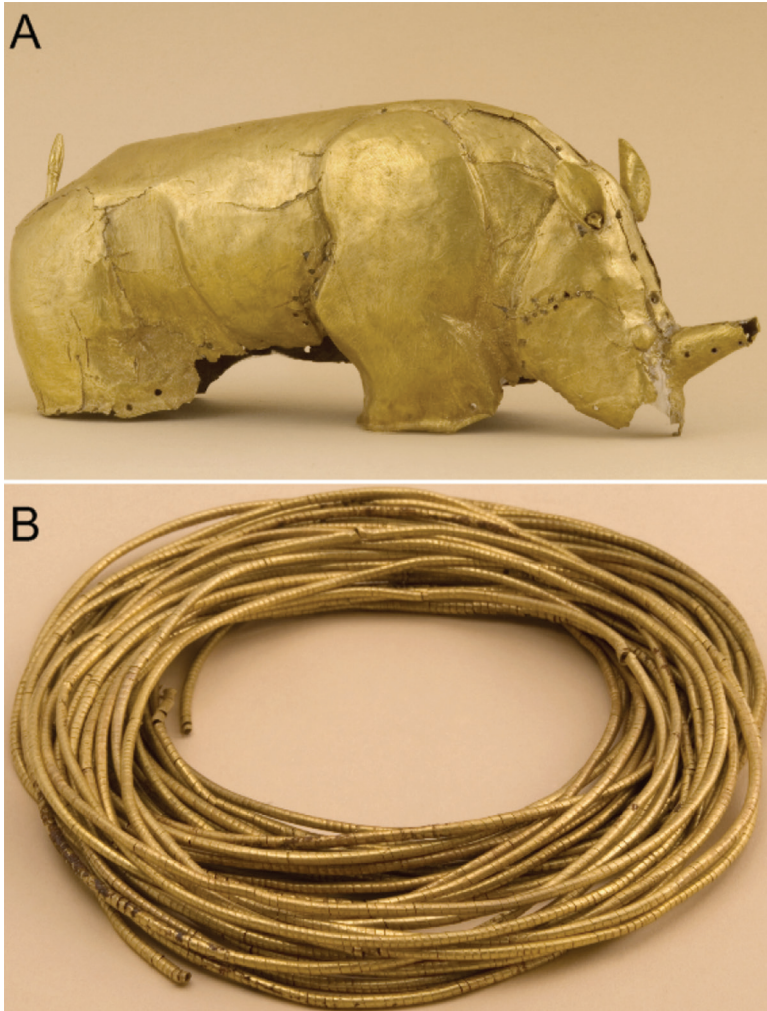


Figure 3.7 Gold artifacts from the Mapungubwe burials (Woodborne et al. 2009).

which economic growth was relatively low and at a time when climatic conditions would have been especially suboptimal for the expansion of herds.

### *The Americas*

To complete our global review of citadels, we now turn to a context where we may reasonably expect deviation from that pattern: the Americas. As we saw in Chapter 2, processes of domestication in the Americas contrasted from those in Afro-Eurasia; involving a greater suite of tropical and subtropical species (including tubers and gourds), fewer animal species, and only one cereal (i.e. maize). The



*Figure 3.8* Iron Age Zimbabwe Enclosure citadel at Great Zimbabwe: (a) the conical tower; (b) closeup of architecture (Wikimedia commons).

differing ecological needs of this suite of crops and the patterns of their spread throughout the Americas probably means that expecting to find parallels for Mesopotamian or Indus alluvium-based agrarianism would be misplaced. From an ecological point of view, moreover, the Americas are lacking in massive river systems that fertilize otherwise arid stretches of continental interior. In the Western Hemisphere, there are thus no clear equivalents to the Indus, the Nile, the Tigris and the Euphrates. Instead, the great river systems of the Americas, such as the Amazon, Orinoco and Mississippi, all traverse regions with significant rainfall. There is, perhaps, a gross comparison to be made between the Yellow River and the Mississippi, since both drainages cut across relatively flat stretches of temperate continental landmass where deciduous forests would (once) have been the dominant ecosystem. Interestingly, the Mississippi Basin was also the primary region of ancient urbanization in the temperate latitudes of North America. But, unlike the Yellow River, the Mississippi was not proximate to any centers of early domestication, which may account for why its urbanization took place significantly later.

A distinctive feature of many ancient centers of urbanization in the Americas is their lacustrine focus. Here, we are thinking of the Aztec cities built on and around Lake Texcoco, especially Tenochtitlan, and the monumental settlement of Tiwanaku on the southern shores of Lake Titicaca. The Tarascans, a significant rival polity to the Aztecs, also built their capital of Tzinzunztan on the shores of Lake Pátzcuaro. By contrast, it is difficult to think of any major Eurasian cities that developed along lakeshores—at least, in ancient times. The energetic basis of lacustrine urbanism in the Americas seems to have been raised field systems, where artificial floating plots of agricultural land were created on lakeshores and regularly replenished with lake sediments. In a sense, raised fields mirror—albeit through the application of human labor—the alluvial systems of the great Afro-Eurasian river valleys. Along the Nile, Euphrates and Indus, seasonal flooding regularly deposits a new layer of nutrient-rich sediment, to the ongoing benefit of the farmers who work the fields. On the shores of Lake Texcoco and Lake Titicaca, ancient farmers dredged up fertile lake silts and deposited them by hand on their raised fields. The latter process requires a lot more work, but the outcome is much the same: highly productive soil that can produce high yields without exhaustion. We make this point to, again, underscore the fact that high-growth environments are not ‘natural’ in the sense that they exist independently of human social and technological systems. As we argued in Chapter 1, economic growth is a process that occurs in *human* economies, and by definition, is a product of interactions between human and nonhuman agents in any given landscape.

With all that said, there are certain environmental contexts in the Americas in which it is easier to extract higher yields per unit area per unit time than others, and there is a certain degree of correspondence between early instances of urbanism and these contexts—in the Tabasco lowlands, the Valley of Mexico or the Maya lowlands, for example. Expansive combinations of wetlands or well-watered lowlands or bottomlands, common in parts of the Americas, are, however, rarer in the more arid regions to the west of the Continental Divide. It is here, then, by analogy

with Eurasia, that one might expect to find evidence for societies that resemble citadels.

The Chaco phenomenon, centered on the San Juan Basin of northwestern New Mexico, provides perhaps the best example of citadel formation in the context of the Americas. Chaco can clearly be placed within the broader tradition of Ancestral Puebloan societies, but it was also distinctive in various respects. In particular, around the end of the 1st millennium AD, Chaco Canyon gave rise to a series of architectural entities called Great Houses. These sites are monumental, multi-storey structures with dozens of rooms, built using labor-intensive core-veneer masonry and exhibiting massive ceremonial structures called kivas that required the importation of lumber from hundreds of kilometers away. Excavations at Great Houses have also provided evidence of cached wealth and elaborate burials (Kantner 2015; Mills 2018). Great Houses were first constructed in Chaco Canyon and adjacent regions during the Pueblo II Period (ca. AD 900–1150), although some Great House occupations seemingly persisted into the 13th century (Durand 2003). Archaeologists working in the US Southwest typically distinguish between Great Houses that are Chacoan and those that are post-Chacoan; the latter, referring to the continuation of the phenomenon after Chaco Canyon itself had been largely abandoned.

Despite the impressive multi-storey architecture of the Great Houses, there is little evidence that many people lived in these structures. The best studied (and largest) of all the Great Houses is Pueblo Bonito, which, despite its over 600 rooms, probably housed a permanent population of only 70 or so (Bernardini 1999: 448). Put another way, there were more than eight rooms for every individual resident at Pueblo Bonito. What exactly did they do with all that space? For the most part, it is clear they did not use it for craft production. Whatever else the Chacoan Great Houses were, they lack archaeological indicators that they functioned as significant manufactories of pottery or lapidary works. Take turquoise beads, for example; although there was some production occurring inside some Great Houses, the general distribution of bead workshops seems to have been quite dispersed and was by no means especially concentrated inside places like Pueblo Bonito (Mathien 2001). In general, it seems that the Great Houses primarily used their ample space for storing things (see Bernardini 1999). Moreover, the organization of architectural space within the Great Houses strongly indicates that access to stored items was heavily controlled and restricted, implying that these concentrations of goods were not public, at least in any practical sense.

What evidence is there to suggest that wealth was concentrated among a small elite at Chaco? Room 33 at Pueblo Bonito contained two 10th-century burials that were remarkable for the quantity of exotic grave goods found within them. Between them, the two interments had 14,275 turquoise beads and almost 600 turquoise pendants, alongside other artifacts of jet, malachite and shell (Marden 2015: 177). The nearest source of turquoise to Chaco Canyon is over 200 kilometers distant, clearly indicating long-distance movement of exotica (Hull et al. 2014). Indeed, more turquoise has been found at Pueblo Bonito than all other 11th-century AD Southwestern sites combined (Lekson 2015: 34). In addition, cylindrical ceramic vessels have been excavated at Chaco (see Figure 3.9a-b), confirmed



*Figure 3.9* Southwest United States Ancestral Pueblo Great House citadel at Pueblo Bonito: (a) cacao consumption vessels from Pueblo Bonito (Crown and Hurst 2009); (b) turquoise from Room 33, Pueblo Bonito (Hannah Mattson, personal collection).

by residue analysis to have contained cacao beverages (Crown and Hurst 2009). The cacao in question must have been acquired from Mesoamerican sources, the nearest of which lay some 2,700 kilometers away. The cylindrical shape of the vessels is highly unusual and seems to have been modeled on Mesoamerican equivalents, replicating a southern style of elite consumption and ritual. Interestingly,

such evidence for cacao consumption in the ancient Southwest is rare, suggesting this valuable, exotic item was monopolized by a small group of people. Only about 200 cylindrical jars have ever been identified in Southwestern sites, and 166 come from Pueblo Bonito alone. Of those 166, the majority (111) were stored in a *single* room within the Great House (Crown and Hurst 2009). By any standard, this is an extreme concentration of wealth. Other significant wealth items associated with Great Houses include macaw feathers and copper bells, yet more imports from Mesoamerica (Mills 2018: 856).

Despite the fact that the term is seldom used by specialists in the archaeology of the American Southwest, the Chacoan Great Houses were essentially ‘palaces’ (Lekson 2015: 14). More broadly, there has been a growing recognition that the Chaco phenomenon represents a conspicuously hierarchical episode that was in many respects quite unlike the egalitarian villages of later Ancestral Pueblo societies (Mills 2018: 863–864). The broader existence of elites during the Ancestral Pueblo era is buttressed by bio-archaeological data (Harrod 2012). However, if the Great Houses were palaces, they existed outside of an urban matrix. Population estimates for Chaco Canyon—which includes a total of ten Great Houses along with many more, smaller sites—vary considerably. However, the overall trend is for drastic downwards revision. The first estimates for Chaco Canyon’s population were in the region of 30,000 (see Cameron and Toll 2001: 8), whereas today, Bernardini’s (1999) estimate of a little over 1,000 permanent inhabitants is increasingly accepted as accurate. As with our discussion of the older population estimates for Great Zimbabwe, the fact that tens of thousands of people were ever considered plausible for Chaco Canyon is itself telling. There is so much congealed labor at Chaco Canyon, in the forms of both architecture and artifacts, it is not surprising that many initially thought in terms of urban-scale populations. But urban-scale material culture, juxtaposed with village-scale demographics, is a general feature of citadels. In this respect, Chaco fits our citadel type very well.

The Great Houses of Chaco resemble citadels in other respects too. Citadels often emerge in environments that have limited agricultural potential, or at least, significant constraints on large-scale, intensive cereal production. The marginality (or not) of Chaco Canyon is a contentious issue, depending on the assumptions being made (e.g. Benson and Grimstead 2019; Wills and Dorshow 2012). Such debates, however, often operate at cross-purposes. Chaco Canyon was clearly not one of the easiest places in the American Southwest in which to engage in large-scale maize farming, and in this respect, can be considered a marginal context. At the same time, steps could be—and were—taken to ensure the population of Chaco had a secure food supply over a period of at least three centuries. There is no contradiction in stating that an environment is prone to marginality *and* that humans can devise systems to overcome that marginality if sufficiently motivated and organized to do so. Indeed, the history of citadels is, in no small part, a story of humanity’s remarkable efforts to construct durable social forms in seemingly unlikely locales.

There are a few respects in which Chacoan Great Houses are distinct from many other citadels around the globe, and it would be remiss not to also highlight these areas of diversity (Figure 3.10). First, Chacoan Great Houses were not fortified, and it appears that, whatever elites resided in them, militarism was not a core element of their power base. Most of the other citadels we have discussed seem to have had a singular palatial complex that served as the primary focus of the settlement. At Chaco the palatial structures (i.e. Great Houses) were multiple and more dispersed. Although there is a clear distinction between elite and commoner residences in the canyon, there was no single center of authority, which is unusual when compared to most Afro-Eurasian citadels. The same pattern of spatially disaggregated elites also occurs at successor sites to Chaco, especially at Aztec Ruins farther to the north, which also had multiple Great Houses. All this is to reiterate that citadels are a highly diverse category, especially in terms of their political organization. Although we have argued for an underlying similarity in terms of low populations and high inequality under conditions of low growth, the axes of potential variation within such broad parameters are far from trivial.

The Chacoan Great Houses have posed substantial challenges to neoevolutionism, being neither clearly urban nor state-like, although some have sought to slot them into the chiefdom category (e.g. Earle 2001). But Chaco's Great Houses never developed into anything resembling an urban state, and in our view, the chiefly designation remains a poor fit with the available evidence. By contrast, the Chaco phenomenon aligns very well with our concept of the citadel and is, likely, its most exemplary representative in the Americas.

### Explaining the prevalence of citadels

Many archaeologists have become accustomed to a particular agro-ecological model of urban emergence. After all, many of the first cities (and their immediate successors) developed in certain types of environments—often, although not always, alluvial or loess contexts well-suited to intensive methods of farming. Intensive and extensive agriculture is probably implicated in the large populations we see coagulating in the first cities. Other environmental conditions were, conversely, probably less conducive to extensifying agricultural production. If there is a relationship between environmental conditions and social organization, we might expect these environments—uplands, coasts and wetlands, islands and arid steppe—to frustrate or limit urbanization. Of course, humans can create a city almost anywhere, so long as they are willing and able to construct the social, political, technological and economic systems to support it. Most ancient cities obtained their food supplies from their immediate agricultural hinterlands. But this was not a rule. The metropolis of ancient Rome had to import most of its grain from Egypt (Kessler and Temin 2007; Rickman 1980). The agricultural productivity of the Tiber Valley was simply not sufficient to feed a city of a million people, and so Romans were—remarkably, for an ancient context—dependent on calories extracted from *another continent*. But, for the most part, global networks capable of counteracting local environmental



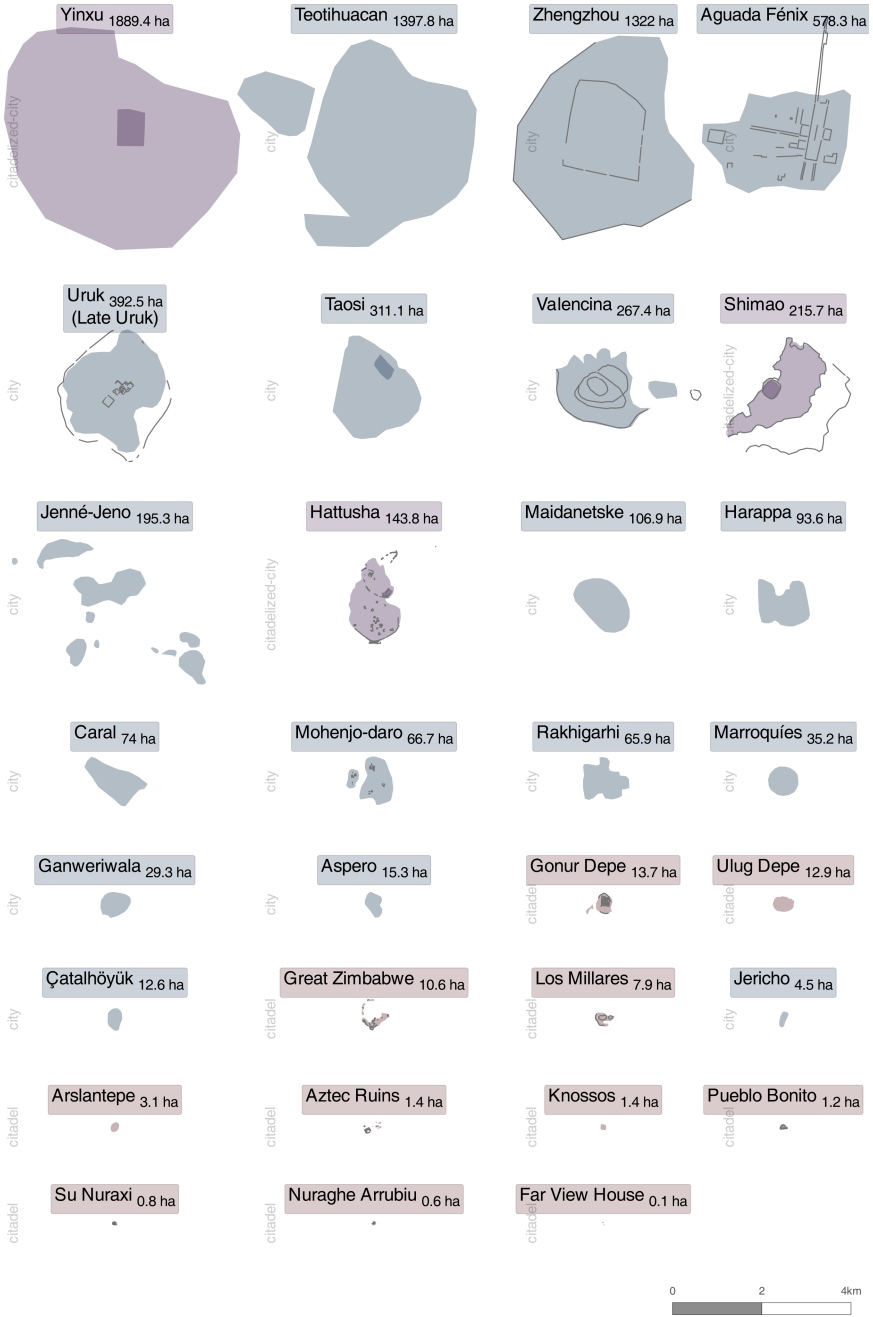


Figure 3.10 Diagram showing comparative spatial footprints of early citadels, cities and later citadelized-cities.

constraints to such a degree were rare, at least prior to the industrial era. Certainly, Bronze Age and Neolithic cities generally needed to sustain themselves with food grown relatively nearby.

Our global review suggests that marginal agricultural environments rarely supported population sizes equivalent to the first cities, even though—and, perhaps, counterintuitively—these same locations often gave rise to citadels with steep wealth hierarchies. From Los Millares and Shimao to Gonur Depe and Chaco, citadel elites appear to have situated themselves at the centers of networks of consumption, sometimes extending over very substantial distances. Thus, we would assert a cross-cultural pattern: low economic growth often drove exaggerated wealth stratification. This pattern disrupts the traditional linear account of demographic growth and urbanization, which assumes that cities and elites go hand-in-hand. At least some initially egalitarian cities eventually moved in a more hierarchical direction (e.g. in Mesopotamia), while others did not (e.g. the Indus). But, in general, extremely unequal cities of the kind that Childe imagined are a later development in the global history of urbanization. Citadels represent an altogether different trajectory, in that they show evidence for hierarchy from the beginning, with elites being a primordial presence within them. Citadels also exhibit less evidence for formalized governance (of the sort best illustrated by writing systems), while also showing a preference for centralized and exclusive storage, alongside conspicuous consumption.

In the previous chapter, we showed that certain types of environments, when combined with Neolithic and post-Neolithic economies, nurtured high levels of economic growth. We argued that this pattern conforms to Piketty's model of the (inverse) relationship between economic growth and inequality. The reverse is also true. When growth is low, the stratifying effects of capital—or, more specifically, the capacity to capture the labor of others—are more pronounced. Again, the archaeological record supports the application of these ideas across deep time. The first ancient societies that show evidence of class stratification seem to have emerged in contexts where Neolithic packages were transferred to more marginal (and thus, low-growth) contexts.

The Mediterranean littoral, the steppe fringes of northern China, the rugged Balochistan uplands; all are places in which the Neolithic economy arrived comparatively early. Yet, compared to the great alluvial plains of Mesopotamia or the Indus, all these regions were low-growth contexts. This does not mean that farming the various Eurasian suites of Neolithic domesticates was impossible in those environments; simply that returns per unit area per time were lower than in other contexts. When growth is comparatively low compared to capital returns—and under conducive ideological conditions—we expect wealth inequalities to expand more quickly. Controlling access to agricultural terraces, a seasonal labor pool or even a second team of plow oxen—all are highly stochastic events that can nonetheless stratify individuals, family units or lineages, according to wealth differentials in low growth environments (reflecting the wider tendency of systems of this sort to move away from equitable distributions). Conversely, in contexts of high productivity, high rates of growth intrinsically suppress the stratifying effects of unpredictable processes.

Evidently, citadels were locally important centers of population centralization, but our concern in this chapter is to focus on global regularities in how such societies operated. Indeed, the pattern we sketched earlier is one of prodigious diversity across a series of dimensions, ranging from powerful groups of ritual functionaries housed in enormous polyfunctional pueblo-palaces to fortified highland centers in northern Shaanxi. In any case, reliable cross-cultural measures of population are notoriously challenging, and as a result, the entire exercise is necessarily inexact to a degree. Nonetheless, it is possible to draw reliable distinctions in terms of relative magnitude. Population sizes at Uruk or the Indus cities were probably in the several tens of thousands, if not hundreds of thousands, while, for none of the citadels we have discussed are there estimates of more than around 20,000—and, in most cases, the consensus view tends to prefer much lower figures.

We have described citadels in terms of constrained demographic scales and clear presence of elites, yet with a comparative absence of the type of institutional governance that—as we will show—characterizes cities in the aftermath of the egalitarian phase. Might we go further and identify a reliable, cross-cultural proxy that has the advantage of lending itself to quantification? In many of the low-growth/high-inequality centers we discuss, elite burials are implicated. When contextualized at the appropriate scale within larger (and ideally, demographically representative) bodies of funerary data, there are clearly routes into measuring wealth distributions via burial goods; for example, the calculation of Gini coefficients for funerary data (e.g. Stone 2018) or house size (e.g. Kohler and Smith 2018). However, it remains a matter of debate among archaeologists how to manage the vagaries of archaeological recovery, intervening taphonomic effects and the enormous diversity of how humans treat the dead obscure underlying wealth differentials. Further research on how to adequately measure inequality is clearly required.

An alternative approach involves considering the outputs of the economic mechanism we are invoking. We envisage a dynamic in which increasing capital allows wealth to accrue at high rates to small subsets of the population, creating a self-reinforcing process. If we imagine a scenario in which access to agrarian outputs is constrained, then privately controlled or centralized facilities that store this wealth might be expected, as might technologies to demarcate that restricted access or ownership (such as seals). These facilities and technologies may occur without formalized, specialized redistributive institutions. In some of the examples above, this is well supported. The Corridor Houses of the 3rd millennium Aegean, Chaco, the Indus sites in Gujarat and Pampa de las Llamas-Moxeke all have architectures devoted to either corralling wealth, signifying information about that wealth, or both. To that extent, the architecture of storage (in the absence of large-scale urbanism) is a fair proxy for low-growth-high-inequality contexts. With that said, control of others' labor can be transmuted into other types of valuable materials without passing through centralized storage facilities, and here, we might note a gross correspondence between citadels and craft production oriented towards rare, exotic or otherwise potentially high-value items—whether of metals, jades, turquoise, alabaster or alligator skins.

Low economic growth impairs the formation of durable institutions of governance and control, including integrative technologies such as metrology and centralized record-keeping, which are concerned with the fair distribution of goods and labor rather than their accumulation and direction by a small, predatory, self-contained elite. We argue that this imposes scalar limits on citadels and renders them essentially fragile when considering periods longer than a few centuries. However, with the same social, ecological dynamic operating, wealth disparities should then rapidly grow again after a dissolution or fragmentation—a recurring dynamic that has been miscategorized as ‘chiefdom cycling’ (e.g. Earle 1987). In fact, we argue that, given its close association with capital returns and gaining access to the labor of others, citadel formation should be expected in social ecologies that produce low economic growth. This reasoning suggests a deep divergence between the general trajectories of citadels and cities—not a linear relationship or one of descent (i.e. ‘chiefdoms’ into ‘states’), but instead, representing quite distinct pathways. Specifically, we assert that, other factors notwithstanding, centers like Aegean Corridor Houses or Chaco or Gonur Depe would never have developed into cities comparable in scale and institutional organization to Harappa or other early cities. The later appearance of, for example, Classical *poleis* in the Aegean or urban developments in the Medieval steppes clearly shows that these environmental constraints were not absolute at long enough time scales, which reminds us that it is the adaptation to the environment, more than any absolute condition of marginality, that makes the difference.

A few additional comments on the aforementioned tendency of citadels to disintegrate and re-emerge are worth making. It seems that, as societies that are characterized by extreme and increasing wealth disparities, citadels are, in general, more unstable than cities. There are probably several reasons for this pattern. One important factor is that citadels seem to lack heterogeneous forms of governance, by which we mean that direct relationships between the ruling classes and their subjects are the dominant political mode. Archaeological evidence for this is seen in the absence of technologies like writing, which is a fairly reliable indicator of heterogeneous institutional forms like bureaucracies, judiciaries, assemblies or priesthoods. Such political homogeneity is largely a consequence of scale; citadel demographics rarely exceed a few thousand people, meaning that all social groups can have direct access to the ruling dynasty. Here, we imagine that for citadels, the primary arena in which political and economic decision-making occurs is something like a royal court, which, in a sufficiently small-scale polity, is not a distant or remote power center but something fairly accessible. This situation contrasts with early cities, which need a variety of institutions to successfully integrate diverse populations numbering in the tens of thousands—although these layers of governance apparently did *not* relate to each other in a hierarchical fashion. As a result, it seems that these small polities built on direct relationships with rulers would be especially prone to collapse in moments of crisis, in which the authority and competence of the elites is brought into doubt. Such crises might have been precipitated by many things—military failures, political unrest associated with rising tribute demands or the climatic shifts that were especially common in the

relatively precarious environments in which most citadels formed. Indeed, it is likely that, in many actual historical cases, all these factors regularly conspired to bring down citadels. Of course, given the tendency of returns on capital to rapidly snowball, it was not uncommon for new citadels to eventually emerge, replacing their failed predecessors. This cyclical dynamic is an outcome of the intrinsic fragility of small, high-inequality social systems (e.g. Yoffee 2016), combined with the likelihood of those systems to develop repeatedly in certain types of environment.

### **Economic divergence: citadel trajectories**

In this and the preceding chapter, we have adapted a modern economic model, developed by Piketty, to explain dynamics in the organization of past societies. In doing so, we have shown that the earliest cities were essentially egalitarian in their social organization, lacking any formal elite class—a pattern that, we argue, is associated with their high levels of economic growth. We have also shown how—conversely—low levels of growth drive a different effect, producing stratified wealth that is reflected in non-urban, elite-dominated citadels. Yet, at this juncture, many readers may have anticipated an explanatory problem. By the 2nd and 3rd millennium BC in various regions, especially Mesopotamia and China, the archaeological and textual record unambiguously points to the existence of polities with large cities that were home to entrenched and powerful elites. These are the kind of stratified cities that Childe assumed were present from the very beginning of the Urban Revolution, but which, in our analysis, should be understood as a later development. Thus far, we have separated the phenomena of class formation and urbanization, so we now need to provide an explanation for their ultimate convergence—the emergence of citadelized cities.

We see a number of viable avenues for addressing this problem. For instance, if high economic growth contexts suppress wealth inequalities, downward shifts in the rate of growth may prompt upticks in wealth accumulation. In other words, an egalitarian city that enjoyed robust growth over many centuries might begin to see elites emerge as growth slows. Such a shift might explain the rise of dynasties in contexts such as Mesopotamia during the 3rd millennium BC. Conversely, a sharp increase in economic growth in an existing citadel may lead to urbanization around a center, prompting an economically besieged elite to seek out ever more formalized mechanisms to control the labor of others. Either of these mechanisms might help account for the Chinese data. Ignoring the citadels that circle the Central Plains, at the large urban sites in the Middle Yellow River and on the Plains proper, it is perhaps possible to trace an incrementally archaeologically visible elite: from sites such as Taosi and Erlitou, in which elites are comparatively challenging to locate, to Zhengzhou and Anyang, where their presence is fairly obvious. However, with the archaeological data in their current form, it is challenging to chart diachronic changes in elite and non-elite governance. As a result, we suggest that such questions will require a lot more study before we can hope for satisfactory explanations. The reason for this is, largely, because the possible social responses to the patterns we have identified are many and rest upon near endless historical contingencies.

For example, if an egalitarian city were to move in a more hierarchical direction due to declining growth, how might the population respond? They might stage a revolution and seek to overthrow the aspiring dynasts. But should they just replace them with a ‘better’ set of rulers or establish a new system of government entirely? Alternatively, they could decide to vote with their feet and abandon the city altogether. And if the rulers are astute enough, they might be able to establish enough alliances with key interest groups to suppress dissent and thus effect the transition to a fully citadelized city. It is likely that all of these possibilities occurred at one time or another over the course of global history.

Reconstructing the possible routes to entrenched inequality is especially challenging in the context of Old Kingdom Egypt. This is due to the fact that, despite Egypt being one of the classic pristine states in comparative studies (Trigger 1993, 2003), it has almost always been left out of comparative work on cities (Hoffman et al. 1986: 175). Once famously described as a ‘civilization without cities’ (Wilson 1960), the poor survival of dense settlement data in the Nilotic flood zone and the lack of studies on larger patterns within broader settlement data have often obscured the diversity of features, functions and scale of Egyptian settlements over the *longue durée* (Moeller 2015: 5; Smith 2020; Stevenson 2016: 453). This larger issue has been recently addressed for the Old Kingdom onward (Moeller 2015), but the lack of data for pre-dynastic urbanism obscures the nature of even relatively well-excavated settlements such as Naqada, Hierakonpolis and Abydos. Did these agglomerations of monumental architecture, tombs, craft and food production and consumption develop to service elite identity-building, akin to citadels, or should we expect the longer lead-in time to inequality found in other high-growth contexts like Mesopotamia? Or does the very unusual social ecology of the Nile push the Old Kingdom outside our loosely bipartite scheme?

To begin to resolve this problem, we would draw attention to two factors. First, the geography of Upper Egypt (in contrast to the alluvial landscapes of the Nile Delta) is globally unparalleled: an enormously highly productive environment, serving as a two-way communication corridor *par excellence*, hundreds of miles long yet only ten miles broad, surrounded by one of the most arid (and impassable) environments in Afro-Eurasia. The closest approximations to this organization are, perhaps, the river systems of the Andean coastal desert. However, in the Andes, the distances between the river valleys are much less, and it is also possible to move between them using a maritime route. By contrast, Mesopotamia and the Indus differ substantially in having lateral extent and not being dominated by only one axis of movement. Second—and related to this unusual geography—is the likelihood of rapid attainment of local demographic ceilings in much of Upper Egypt after the end of the Holocene Wet Phase around 3500 BC (the cessation of which would have compacted populations from the wide region into the Nile Valley as the Sahara became increasingly inhospitable).

Perhaps the best-studied site for examining the initial emergence of hierarchy in ancient Egypt is Hierakonpolis, located (tellingly) in Upper Egypt rather than the much more expansive fertile landscapes of the delta. A standard estimate for the population of Hierakonpolis by the beginning of the Naqada II suggests a range

of between 5,000 and 10,000 living in an urban area of about 36 hectares before its subsequent centralization and nucleation (Moeller 2016). This upper estimate would imply that, *prior to* its later nucleation, Hierakonpolis had a population density twice what is generally accepted for Mohenjo-daro or Uruk (see Nissen et al. 1993; Wright 2010). Unsurprisingly, we find these estimates implausible. By the Naqada III period, approximately when the site is implicated in nascent processes of state formation, the settlement at Hierakonpolis had concentrated itself into a walled area of between five and seven hectares (Moeller 2016). Assuming a population density similar to the other cities of Bronze Age Eurasia (i.e. 150 people per hectare), a population of 750–1,000 people is more realistic. Consequently, demographic estimates for Hierakonpolis should fall much closer to what we consider typical for citadels rather than early cities (see also Batey 2012). Some recent surveys at Abydos have also argued for relatively low population densities (Patch 2004; both discussed in Stevenson 2016: 436). Population density seems to have been low at these predynastic centers, but inequality certainly was not. Burials at these centers show that wealth was highly inequitably distributed. The cemeteries and tombs at Hierakonpolis, particularly that of cemetery HK6, indicate that unequal access to luxury goods and more elaborate burial construction and decoration was already entrenched by the late Naqada I and Naqada II periods (Hoffman et al. 1986: 183–184; Stevenson 2016). Furthermore, a recent re-analysis of the burial data from pre-Dynastic Naqada and its surroundings also points to highly centralized elite institutions with control over prestige materials used for votive and burial objects (Hassan et al. 2017).

We would tentatively suggest that early Egyptian civilization was, indeed, a civilization without cities, but not, perhaps, one without citadels. What makes Egypt rather unusual is that these citadels would have necessarily emerged in the dense demographic context of a Neolithicized Nile Valley. Generally speaking, the Bronze Age citadels we have been describing in this chapter did not establish territorial states. Yet, the exceptional geography of Egypt, in which all the habitable land is compressed into an extremely long and narrow corridor, and as a result, in which power-projection can only occur along one riverine axis, might go some way to explain its unusual political dynamics and early integration. Some additional clues might also be gleaned from a consideration of Egypt's geography within a broader, Afro-Eurasian framework.

The portion of the Nile Valley that is most similar to southern Mesopotamia, the Middle Niger or Indus Basin is the great delta that fronts onto the southern Mediterranean seaboard. Here, the long and narrow strip of fertile land that characterizes most of the Nile branches out to the east and west, creating a wide expanse of highly productive farmland. At least after the introduction of domesticates to the region, the delta must surely have represented the demographic core of the Nile Valley. However, the delta, curiously, plays only a marginal role in the standard story of Nilotic state formation. In part, this story may be dependent on archaeological visibility—early levels in the delta have been buried by meters of subsequent alluviation. But perhaps it is not coincidence that all the sites with evidence for incipient monarchy and sharp wealth inequality—Naqada, Hierakonpolis or Abydos—are

located far to the south—i.e. Upper Egypt—whereas sites within the delta show little signs of sociopolitical complexity prior to the Old Kingdom. Indeed, if material documents such as the Narmer Palette can be believed, the first Egyptian state was created by warlords marching north from a homeland in Upper Egypt. Although doubtless a simplification, there is, likely, a real kernel of truth here; Egyptian monarchy emanated initially from a southern base. If one is accustomed to seeing hierarchy as an inevitable response to increased demographic scale, then political machinations in the delta should have provided the catalyst for the pharaonic age—something that clearly is not the case.

Our model, we think, fits better with the actual evidence to explain this unique Egyptian trajectory. In Upper Egypt, the high productive potential of the Nile silts is compromised by the narrow, fluvial plain, with these combining to drive very high (and broadly dispersed) populations bumping up against eco-demographic thresholds. This, counterintuitively, tended to depress growth, probably quite substantially, by Naqada III. The same ceilings would not have been obtained in Lower Egypt, with its subsistence geography more closely approximating southern Mesopotamia, the Indus or the Middle Niger—all regions in which egalitarian cities emerged. To be clear, the explanatory mechanism here is not population pressure *per se*, since there is no necessary linkage between demographic density and hierarchy. Rather, it is the low economic growth that arises from a demographic ceiling that fosters nascent elites and social stratification. Thus, Egypt provides a rather unusual case study, in which citadels emerging in its lower growth regions were able to effect the military absorption of one another and then of a neighboring, higher-growth region (i.e. the delta) at a comparatively early juncture, aided by the frictionless (and unavoidable) military-economic communication trunk route the Nile offers.

### **Economic convergence: citadelized cities**

Throughout our arguments, a primary factor in determining potential growth was the productivity of the immediate environment. Again, however, we must caution against reading these ecological differences in absolute terms. Although all biomes have distinct relative carrying capacities with respect to human populations, the precise capacity of any given locale is subject to the nature of food procurement strategies used (e.g. choice of food and manner of its procurement and facilitating technologies) and to diachronic variability (e.g. as climate change or human exploitation induces deteriorations or ameliorations in the environment). Moreover, the ‘immediate environment’ is not a given but a socially and technologically mediated concept. In the 2nd millennium BC, the Nile Delta was not part of the immediate environment of the Italian Peninsula, insofar as it would have been impossible for urban populations in the latter to depend on grain imports from the former. However, in the subsequent millennium, Egypt was made a Roman province and new maritime technologies meant that shipping vast quantities of grain across the Mediterranean was now possible.

The point is that any change from high to low or even to negative growth could have been transformative for societies whose social organization had previously



been predicated on a different rate of growth. We suspect that this was, indeed, the case for many early city contexts at the end where the cultural unacceptability of the increasing potential for capital simply led to an overall rejection of the system rather than a shift to a stratified economy (e.g. Trypillian megasites, the Anatolian and Levantine megasites, or Indus cities). Many were ultimately abandoned, with subsequent settlements in each region taking radically different archaeological forms. In a few cases, however, the aggregate population structure and physical location of cities may have been preserved despite lowering rates of economic growth, usually at the expense of their earlier, egalitarian structures. Just as small margins in low-growth economies created standalone citadels around the Mediterranean, small margins for growth in already saturated Mesopotamian environments from the end of the 4th into the 3rd millennium transformed broadly egalitarian cities into what we would call citadelized cities. The trend toward hierarchical structures in Mesopotamia is clear throughout the 3rd millennium BC: aside from the exceptional example of the Royal Cemetery at Ur, most of the evidence for inequality comes from the expanding influence of temples and then palaces as political seats, both in the form of larger imprints in the plans of Mesopotamian cities but also through iconography emphasizing individual leaders and textual traditions referencing kings and other forms of elite.

Not only do historical rulers boast of their untiring and omnipresent role in creating and shaping their cities, but the idea of a dynastic ruler as city-creator is baked into the Mesopotamian view of the orderly cosmos. In the Sumerian King List, the earliest extant version of which dates back to the late 3rd millennium BC (Steinkeller 2003), the institution of kingship is said to have directly “descended from heaven” (Civil 1969: ii, 88) and, in the so-called Sumerian Flood Story, the earliest written version of the Sumerian creation myth (Old Babylonian, ca. 1600 BC; Civil 1969), kingship comes to Eridu and other southern Mesopotamian cities before the “let the bricks of all cities be laid in holy places,” before the names of the cities were established or even before the rivers were harnessed for irrigation (Civil 1969: ii, 88’–100’). It was Gilgamesh, the quintessential hero king, who is credited with single-handedly rebuilding the mighty city of Uruk, its temples and agricultural land after the great flood—the narrator of his epic exhorting the reader to “See its wall which is like a strand of wool, view its parapet which nobody can replicate! . . . Go up on to the wall of Uruk and walk around, survey the foundation platform, inspect the brickwork!” (Prologue, 11’–23’; George 2003: 539). Unfortunately, many archaeologists have fallen under the spell of these stirring words.

Archaeological evidence does not corroborate the myth that Mesopotamian cities were founded by kings. How then did the initially egalitarian cities of southern Mesopotamia actually become citadelized? Such questions will require a lot more study and are hampered by the relative lack of archaeological research in Iraq due to the often unstable geopolitical situation, though it is worth noting that several major projects are currently underway that promise to shed light on these matters (Hammer 2022; Jotheri et al. 2019). Nonetheless, it is very interesting that the clearest archaeological evidence for kingship appears in the northwestern

periphery of Mesopotamia long before it occurs in the alluvial plains of Sumer. At Arslantepe, for example, there are the remains of “the earliest example of a ‘palace’ that has ever been discovered in the Near East” (Frangipane 2018: 26), dating to about 3350 BC. And yet, Arslantepe was by no means a metropolis, never exceeding five hectares in total area. As with citadels in general, its monumentality seems out of proportion to its modest demography. We also find the earliest evidence of retainer sacrifices along the Anatolian stretches of the Upper Tigris. At Başur Höyük, for example, probable retainers have been identified in a cemetery context dating to 3100–2800 BC, set within an earlier Uruk settlement. As well as sacrificed humans, these elite individuals were buried with large quantities of bronze artifacts and some 30,000 pieces of beadwork, much made of lapis lazuli (Hassett and Sağlamtimur 2018). Arslantepe also has an elite burial with sacrificed retainers, dating to 3000 BC and associated with the breakdown of the aforementioned palace system (Frangipane 2001). Indeed, these burials were inserted into the ruined parts of the former palatial buildings. Thus, palaces first appeared in the citadel zone during the Uruk Expansion, while early royal burials emerged in the same region after the same expansion had stalled.

As is well known, during the Early Dynastic IIIa period (ca. 2550–2400 BC), the Sumerian city of Ur witnessed the construction of magnificent burials<sup>1</sup> filled with richly adorned sacrificial retainers and the trappings of large-scale funerary performances. The Great Death Pit of Ur and the funerary regalia of Queen Puabi are *de rigueur* stops on any introductory tour of the ancient world. But is it not strange that palatial architecture, rich burials and retainer sacrifice should all have appeared first along the upper banks of the Tigris and Euphrates, some 500 or more years before they occurred at the great urban centers of the southern alluvium? For traditional theories, this constitutes a theoretical problem; the trappings of monarchy are all supposed to correlate with urbanism. However, such evidence accords very well with our model, which sees citadels, rather than cities, as the main contexts for proto-monarchical developments. Indeed, the highly irrigated landscapes of southern Mesopotamia, rich in marsh and sea resources, should be the *last* place to experience a shift toward socioeconomic inequality, since they provide the most productive farmlands in the region. How monarchy spread from the citadel zone of Upper Mesopotamia to the urbanized zone of Lower Mesopotamia is a question we cannot hope to address here. We suspect that, in many contexts, citadels were able to coopt nearby cities, perhaps through violence manifested in encircling military confederations. And, once the citadel monarchies succeeded in implanting themselves into cities, they were able to grow to newly gargantuan proportions.

Even if early urban conglomerations were ideologically egalitarian, some urban societies, including especially those of Southwest Asia, ultimately became

1 The retainer sacrifices ca. 2400 at Ur are the only known example of this phenomenon in 3rd millennium Sumer and that the EDIII palace at Ur has not been located. It is not, therefore, clear that such sacrifices were an established tradition at this time, and some have argued that this may have been a rather jarring event that ruptured the social fabric.

citadelized. In other words, they lost their original egalitarian form and were transformed into something new. In practice, this modified urbanism looks like a hybrid of the citadel and the egalitarian city, with large demographic agglomerations surrounding elite palatial complexes. Citadelized cities are very similar to the classic understanding of urbanism that was given to us by Childe. Given the chronological resolution and retrospective textual references to Near Eastern kings available at the time Childe was writing, it was natural to assume that the first Mesopotamian cities involved in the Urban Revolution were indeed hierarchical in nature and that this represented a break with a less hierarchical past. Much subsequent critical reflection on the origins of cities has taken a similar view of the urbanization process. Yet, this particular lens is, in large part, a product of our historical vantage point. Thus, our primary disagreement with Childe is not that we reject his picture of urbanism—rather, what he saw as primordial (i.e. stratified cities), we see as a late historical development; the merging of the city and the citadel. In other areas, such as Egypt, early citadels seem to have gradually evolved into urbanized citadels, with accompanying hierarchies and massive wealth inequalities. In effect, Egypt and Mesopotamia might, then, be seen to exhibit opposite trajectories. Along the Nile, citadels emerged early, and over time, these small settlements urbanized, so that, by the New Kingdom, they had become as populous as any Bronze Age city. In contrast, along the Tigris and the Euphrates, it was egalitarian cities that appeared first, and by the Early Dynastic phase, these settlements had developed the hierarchical structure of a citadel, albeit on a much larger scale.

Citadelized cities *should* be well studied. They are, after all, an enormously important historical phenomenon. And yet, they should be studied with a clear awareness that they are a late development, relatively speaking, in the global history of urbanism. In our view, all manner of serious errors have arisen from the assumption that the Childean city is the only form of urbanism that has ever existed and that it was thus present from the very beginning. In particular, such a belief has suppressed our ability to develop a genuinely *historicized* understanding of the relationship between urbanism and inequality, by the very act of conflating these two phenomena. In the following three chapters, we will explore the effects of this erroneous perspective on urban origins with respect to citadelized cities, drawing inspiration from a variety of heterodox economic perspectives. These include the nature of quantification, metrology, money and the relation to value in Chapter 4; the relationship between mercantilism, entrepreneurial risk and political authority in Chapter 5; and the state-sanctified monopolization of property rights in individuals and how it led to new extremes of inequality in Chapter 6. As we shall see, not only is the elite-driven origin of the city a myth but the composition and strategies of elites also changed in nature through time, as did their relationship to structures of governance.

## 4 Measurement

### A deep history of political metrology, money and value

As we saw in earlier chapters, archaeological evidence indicates that economic growth, especially in urban contexts, was not driven by the agency of ancient elites. Of course, as we argued in Chapter 2, it also remains true that all social groupings require governance—a reality that becomes more challenging as demographic scale or network complexity increases. Although we have argued that the first cities lacked ruling classes, we are not dismissive of the real and distinctive political challenges that are entailed in the management of urban populations. Cities require a complex array of institutions and technologies to adjudicate disputes, allocate resources and organize space; all the more so because they tend to concentrate so many people into relatively small areas. Of course, there are many archaeological studies that aim to explain this economic phenomenon (e.g. Bettencourt et al. 2013; Birch 2013; Feinman 2011; Johnson 1982; Ortman et al. 2016; Smith 2019). We would suggest that the incentive to create new institutions and technologies is linked to a particularly prominent feature of urban sociality—the degree to which interactions occur between strangers on an everyday basis (*sensu* Jacobs 1961). The inhabitants of a village might occasionally expect to encounter unfamiliar people, but for urban denizens, such interactions are much more constant. Once populations exceed a certain threshold (i.e. tens of thousands), it simply becomes impossible to know most of the people with whom one shares a settlement. For economic interactions, there are significant challenges that come into play when the various parties do not know each other. All cities must therefore develop mechanisms for managing such interactions, albeit with much variety from one context to another.

Widespread is the belief that the invention of technologies that facilitated economic transactions in high-growth economies owe their existence to a ruling class. This belief is a reflex of elite determinism and needs re-examination. In the indigenous myths of ancient Mesopotamia, the invention of standardized weights and measures was invariably attributed to kings. The ruler is repeatedly cast in the role of the divinely sanctioned hero who fashions order from primeval chaos. Many scholars have taken these myths at face value, assuming that it really was the ruler—or, at least, palace officials working on their behalf—who devised the first systems of weight metrology. But is this actually true?

At this juncture, we narrow the spatial and chronological scope of our analysis, focusing primarily on Eurasia during the Bronze and Iron Ages. Our focus in

this chapter reflects the fact that several parts of Eurasia took a radically different path from the 3rd millennium onwards and saw the emergence of higher levels of inequality than were found in either city or citadel societies elsewhere, especially the Americas (e.g. Kohler et al. 2017). One of the most distinctive aspects of Eurasia's ancient history is the widespread emergence of metrology, or technologies of measurement. From the turn of the 4th into the 3rd millennium BC, we see the first evidence anywhere in the world for weight metrology, initially in West Asia. By contrast, similar evidence has remained elusive in the Americas, despite the invention of sophisticated metallurgy from ca. 1500 BC (Sprager 1994). This difference between Eurasia and the Americas has rarely been considered seriously, in part because the study of ancient and historical metrology has become an intellectual backwater in the historical sciences. A considerable proportion of serious scholarly effort in historical metrology has, as Vera (2016) notes, been dominated by the enumeration of the array of alternative units of measurement used in the past. Historical metrology, even more than its sibling field of numismatics, has lacked sustained engagement with the sociological, political and economic consequences of different modes of mensuration. But metrology is far from a neutral economic or self-evidently rational act, and the modes of metrology that a society selects will always instantiate particular sets of political values and norms. We therefore begin from the assumption that it is only from such a critical perspective that we can understand the rise of new metrological practices in the Eurasian Bronze Age.

To put the new technology of balance-based metrology in historical context, we need also to keep in mind the comparative development of tokenicity (i.e. the recognition of sameness), numeracy, accountancy and, perhaps most importantly, money. Since 2010, archaeologists have begun to seriously re-engage with the study of ancient weights, focusing especially on the technology's relationship to markets in West Asia and Europe (see Ialongo et al. 2021; Rahmstorf et al. 2021). Indeed the relationship between early writing, mathematics and metrology has long been recognized (Michailidou 2001). But the history of money has traditionally stood apart, dominated by unsubstantiated origin myths. This is partly because the nature of money is poorly understood by archaeologists and partly because the history of money is too often conflated with the history of coinage (which is only one very historically specific form of money). For the purposes of this chapter, we define money as a metrological technology of governance. The modes by which money is measured and organized are always inextricable from their political context. In this sense, we adopt the chartalist view that money is a primarily political 'creature of the state,' rather than a neutral 'creature of the market' (Tcherneva 2016). We note, however, that, while the selection of the mode of metrology may be political, the *de facto* material understanding of money can operate in ways which appear neutral and therefore can be harder to control. By building on these basic insights, we aim to integrate metrology, money and socio-political frames and move beyond discredited neoevolutionary narratives.

Such an approach requires a radical rethink of many previous assumptions, including the assumption that only sovereign or state authorities—such as kings or priests—can standardize the units of a particular metrological regime. This assumed

link between metrology and centralized political authority represents something of a quiet orthodoxy in archaeology. For example, writing with regards to Bronze Age Cretan palaces—institutions we would probably characterize as citadels in the typology we put forward in Chapters 2 and 3—Kopcke (1987: 257) says that “to proclaim standards by which things can be weighed and measured appears to be a time-honored *prerogative* of central authority.” Indeed, some scholars have characterized all programs of quantification as inherently hegemonic and state-led (Scott 2008, 2017) or aligned to the needs of capitalist nation-state bureaucracies (Graeber 2015). Attempted interference in metrological practice by centralizing sovereigns and bureaucracies may well be universal, but we would argue that different modes and forms of mensuration can arise and develop in a variety of contexts, with variation in the degrees of precision, magnitude and heterogeneity according to the needs and priorities of the time. We will discuss later the priorities of different types of actors in relation to metrology in more detail.

The core of this chapter draws on the emergence of two archaeologically attested systems of metrology, both of which ultimately served many of the functions of money. First, we argue that earliest documentable metrological technologies across the world—tallies, tokens and seals—developed as tools of governance, helping people manage the distribution of goods and labor amongst the growing populations of Neolithic settlements and egalitarian cities. We have no reason to assume this governance was directed or controlled from the top-down by a ruling class. In some instances, it was not even managed by metrological or accountancy specialists, resulting in a wide variation in forms. Tokens made from valueless or common materials inscribed only with mnemonic signs, found across the Americas and Eurasia, frequently acted in similar ways to modern money, materializing debt relations in convenient forms and/or directing labor toward activities deemed productive by the community at large.

By contrast, balance weighing emerged chronologically later than tallies, tokens and seals, appearing in Eurasia during the terminal 4th and early 3rd millennia. This new metrological mode, built on practices of divining and comparing objects by weight, seems initially restricted to managing the flow of metals. As a result, balances, or weight metrology, soon facilitated the emergence of bullion-type money systems. A bullion-based system is one in which a particular metal is used as the universal means of expressing values—such as measuring the value of grain, wool or livestock in shekels of silver. Other goods were later weighed, such as textiles, precious stones or exotic foodstuffs—all things that tended to circulate across geopolitical boundaries. An objectified value-system based on weighing metals against shared stone units provided a means to limit the potential extremes of predatory ruling classes by preventing them from monopolizing the means of value ascription. Metal measured in weighed units was used as bullion or commodity money, harder to control by political management, and thus, created different affordances for economic governance. But bullion could, nonetheless, be accumulated in vast quantities if someone was located in the right place in the web of political and economic relationships. These earliest weighing systems do not seem to be a sovereign or state-led imposition to control local economies or tax subjects—weight

metrology was pretty much irrelevant to early in-kind systems of taxation. Instead, they emerged among nascent mercantile networks to manage inter-polity trade in which state-type political and economic authority was, at most, diffuse, spatially restricted and often ineffectual.

At least initially, weight metrology was a specialized tool for long-distance merchants, which appeared as economic activity increasingly expanded beyond the control of particular political entities. Two distinct processes can be identified. The first is self-regulation, which resulted in standardization—a process that occurred without an overarching political framework. Only when ruling groups attempted to wrest control over the inter-polity exchanges that supplied the preciousities they had begun to depend on as symbols of authority—such as lapis lazuli, precious metals—do we see the second process. This is metric unification—a process that diverged significantly from initial economic mensuration. Metric unification coincided with political projects of imperial territorial expansion (e.g. during the Akkadian period), in which rulers attempted to expand their political sovereignty over a previously independent economic network. However, it seems likely that most such programs of metric unification had variable and quite limited practical effect beyond the sphere of state taxation of merchants; local communities and mobile traders continued to use whatever traditional metrological units and practices they deemed most appropriate.

Political entities in later periods found different ways to monopolize the ascription of value and control labor, such as coinage—a state-backed fiat currency masquerading as a material-backed bullion one—a theme to which we return in Chapter 6. These arguments are only possible to make once we have first stepped away from the myth of elite determinism and begin to treat the modalities of apparently neutral technologies, such as metrology, as both deeply political and economic in their consequences.

### **Elements for a historical political metrology**

It has always been the care of wise governments to provide national standards and to make the use of other standards punishable. . . . The man of business requires these standards for the sake of justice, the man of science requires them for the sake of truth, and it is the business of the state to see that our . . . measures are maintained uniform.

(James Clerk Maxwell 1877, cited by Schaffer 1997: 438)

Historical political metrology remains an underdeveloped field. A few core elements must therefore be outlined before we can discuss particular cases. The basic social function of metrology is to create agreement about equivalences between things in the real world. Metrology and mensuration are the fields of human activity by which materials, spaces, times and products of human labor are compared and judged. If judged unequal, metrological quantification offers an indication of the degree and direction of difference. Centrally important are the means by

which practitioners can generate objective values; namely, producing consistent codes (accuracy) by different individuals within the bounds of acceptable tolerance (precision). But how do we establish equivalence between categories of things or services that seem fundamentally different? Kula (1986) argues that perceiving common dimensions across different materials is not self-evident, and doing so requires social agreement to identify objective ways to overcome subjective perspectives. Indeed, it may also be important to differentiate qualities of things within categories. This is the problem of commensuration—literally, the need to find a common measure between things, of recognizing equality and inequality, of *tokenizing* different objects into categories. There are many different axes along which the world can be measured by comparison with agreed units, although, broadly, basic dimensions include time, space or energy. Weight metrology, for example, is a measurement by which an object’s mass is affected by gravity.

We stress that metrological systems do not, by default, relate to external, universal truths. They are constellations of communal and social human ritual practices that might be thought of as forms of systematic divination to help to order the relationships between things (Moore 1957). It is therefore worth outlining some different types of mensuration (Table 4.1). The term ‘mensuration’ provides a broad term for activities that prioritize the determination of more generalized similitude, ordinality—such as in size or value—and equality or inequality via socially agreed practices of measurement. Mensuration practices do not *necessarily* link to number codes, but one sub-class of mensuration that we call here numerical or exact metrology, in which there are formal or strict relationships, does usually involve numerals. All forms of mensuration involve symbolic substitution, which allows us to think about mensuration practices as social and ritual tools for understanding the world and determining the relationship between things.

Mensuration methods are pre-determined by a community of practitioners, but the outcome of any particular procedure is not. This distinguishes mensuration from other forms of divination. Most mensuration rituals rely on substitution; that is, predefining equivalence between two different categories of things and allowing the substitute to be used as though it were the original thing. The connection between mensuration and divination is made explicit by objects such as the famous 93 kilogram bronze object shaped like a gigantic sheep’s astragalus

Table 4.1 Metrology, mensuration and pseudo-metrology: ritual determination of the relationship between things.

	<i>Results unknown or indeterminant</i>	<i>Results predetermined</i>
<b>Reproducible results</b>	Exact Metrology Mensuration Systematized Divination	Pseudo-metrology Rite of passage (Pseudo-metrological substitution)
<b>Unreproducible results</b>	Interpreted Divination Games of Chance	Puzzles, Games of Skill



(an ankle bone) with an inscription in Greek (Rougemont 2012), found in Achaemenid Susa but likely manufactured and then confiscated in Greek Miletus. Real *astragalo*i were traditionally used by the ancient Greeks as divination tools and in children's games; thus, the shape of this over-sized sculpture references divination of the future, but the material bronze and inscription reference wealth and weighing.

The technologies and practices involved in mensuration provide a metaphorical toolkit for the wider divination of truth. Judicial procedures are designed to assign guilt by divining truth; hence, the symbolic association with weight meteorological instruments like balance weights (Burnett 1987; Stoney 2016; Sutherland-Smith 2011). Likewise, New Kingdom Egyptian depictions from the 2nd millennium BC show postmortem judgment of a person's moral value include hearts being measured using balance scales; this is a process called *psychostasy*. Meanwhile, 1st millennium images on Greek pottery vessels show scenes of *kerostasis*; namely, the fates of mortals decided on balance weights (Seidenberg and Casey 1980). The physical tools and ritual procedures associated with real metrology may be mimicked or hijacked to create rituals of 'pseudo-metrology.' Their superficial re-use provides a cover to subvert exact metrology's associated objective authority for specific social or political aims. This is seen in, for example, the medieval practice of weighing kings as part of taxation and redistribution festivals known from India and Europe (Schaffer 2015). To a modern observer, such practices may seem particularly baffling because their underlying logic is often purposefully opaque. Finally, we should also acknowledge a related category of behaviors which we can call 'anti-metrology.' This includes taboos against counting or measuring certain things—especially persons (Kula 1986: 13–17; Seidenberg 1962: 19–20)—and iconoclastic destruction of metrological symbols.

In contexts where we can document numerical or exact metrology, it is worth acknowledging that any desire for exactitude is probably not equally distributed across all social groups and their specific interrelation with other groups (summarized in Table 4.2). Merchants are more likely to emphasize exactitude because of a mutual ambition to ensure the value of transactions are accounted as equal. By contrast, agrarian laborers may prioritize consistency and predictability over exactitude, especially in tributary relations: since their total wealth is low, small shifts in the value of a measure can have locally outsized effects. In contrast, authorities may often be more interested in magnitude than exactitude, at least in dealings with perceived subordinates; small fluctuations on individual transactions are less significant than total income and its direction. Similarly, divergence of attitudes applies to the 'standardization' and 'unification' of metrological units: agrarian laborers want consistency (e.g. offering tribute in the same kind of good each occasion, keeping the absolute quantity stable, doing so at predictable times each year), not necessarily the abstract unification of metrological systems (e.g. the same unit having the same absolute value over very large distances). At a local level, fairness and predictability may be more important than ideological purity, and wider programs of unification may create unrest (Kula 1986: 127–184).

Merchants may not be so concerned with the unification of standards and may use multiple metrological systems to allow them to defray transport costs and hide effective profits, unless—importantly—unification facilitates increased profits across borders. Sovereigns—broadly defined and inclusive of republics and guilds in addition to kings—aim to unify metrological systems ostensibly to reduce incidents of unfairness in markets but also to increase their economic control. Discussion of metrology in ancient societies is replete with diatribes against the trickery of unscrupulous merchants and/or the administrators responsible for regulating units. Mesopotamian royal mythologies emphasize the role of kings in establishing economic justice in this field:

After An and Enlil had turned over the Kingship of Ur to Nanna, at that time did Ur-Nammu [31–35] . . . **establish equity in the land**; he banished malediction, violence and strife [104–116]. . . . He fashioned a bronze sila-measure, standardized the mina weight, and standardized the silver and stone shekel in relation to the mina [143–149] Prologue to the law codes of Ur-Nammu, c. 2100 BC.

(Finkelstein 1968: 67–68)

The rhetorical emphasis on justice hides the benefits that unification has for rulers and bureaucrats: unification allows greater centralized transparency and visibility of markets and increases the potential for taxation. For merchants and profit-oriented elites, such visibility to bureaucratic authority may not always be desirable. The establishment of unified and authorized standards is not the universal desire nor rational expectation for all social groups. In Europe before the 1800s, for example, different products were often measured using different units (e.g. ‘ells’ vs. ‘feet,’ with no standardized conversion needed between the two systems) or via different dimensions (volumetric measurements such as ‘bushels’ vs. weight in ‘pounds’). When it comes to economic metric unit systems over the *longue durée*, precision (the increasing quantitative levels of differentiation, which actually hinders agreeing equivalence) or uniformity (a single often state-backed, system of units) may have been less important than fairness (the same result using different instruments involving different people), consistency (the same result from transactions at different times) or arithmetic ease (reducing the effort needed to calculate divisions of quantities).

It is important to bear in mind these different aims, even though we are easily lulled into thinking the terms of interest are identical. A better assumption is that, as a society becomes increasingly diversified into different groups—either in the form of the labor specialization inherent in high-growth cities or in contexts like citadels where stratification leads to more asymmetric economic relationships—the range of motivations involved in metrological practice are also likely to diverge, multiply and diversify. The main point we want to make is that mensuration can serve very different political aims.

Real-world qualities are often continuous in nature, but most metrological recording and economic mathematics across human history has dealt in countable

*Table 4.2* Political priorities around metrology for different social groups within Bronze Age societies.

<i>Socio-economic group</i>	<i>Contexts</i>	<i>Objects of measure</i>	<i>Metrological priorities</i>
Rulers (sovereigns, political elites, kings and states)	Receipt of tribute, protection money or taxation	Grain Corvée labor (for public construction) Bullion Other agrarian or craft products	Magnitude (to ensure symbolic and economic authority, and reproduction of political order) Unification (to reduce assessment costs)
Merchants	Exchange transactions	Bullion currency (esp. silver, gold) Commodities (mostly high value products)	Exactitude (to calculate relative profit) Standardization (to reduce costs of exchange)
	Payment of tribute or protection money	(Percentage of) Commodities (Percentage of) Bullion	Consistency and predictability (to reduce risks to exchange)
Dependent laborers and/or craftspeople	Receipt of rations or salary	Grain or beer	Magnitude (to ensure living standards, and reproduction of household and social order)
	Payment	Corvée labor Craft products (textiles, jewelry, weaponry, vessels)	Consistency and predictability (to ensure production burden does not outgrow capacity to produce)
	Craft production	Raw materials (fibers, ores, clays, etc.) Finished products	Exactitude (to enable high quality production)
Agrarian laborers	Payment of tribute and taxation	(Percentage of) Grain (Percentage of) Other Produce Corvée labor	Consistency and predictability (to ensure tax burden does not outgrow capacity to produce)
Unfree laborers	Relationship to owners or creditors	Generalized labor vs. debt	Minimal magnitude (for survival or debt payments)

or fractional units. By definition, such units represent a codification of the world, and the degree of conformity<sup>1</sup> between objects representing these units can vary immensely. Archaeologists face particular methodological challenges in identifying direct evidence of metrological units in the past. The identification of ancient units requires comparisons with modern counterparts, such as by weighing artifacts to see if they fit into a system of standard units (e.g. Petrie 1926) or by searching for a common length denominator for all the measurements in a monument, building or city plan (Dörpfeld 1890). Archaeological recording does not always include standardized documentation of precise mass or dimensions, and many relevant objects may only be partially preserved. Thus, an immense amount of speculation must be done before statistical methods can help to establish potential ancient quanta (Ialongo et al. 2018; Kendall 1974; Pakkanen 2002).

Hunting past quanta in this way relies on an assumption that some precise abstract value is the true unit, and that variation represents noise resulting from imprecise manufacturing methods. While this expectation may be valid in many ancient and historical contexts, it is far from universal. In fact, abstract units of this sort are what Kula (1986) defines as metric or ‘conventional’ units, in opposition to significant<sup>2</sup> or ‘functional’ units. This is a typological distinction worth explaining. Conventional units are arbitrary and abstract, notionally always and everywhere the same—a concept restricted only by instrumental precision. Confusingly, though, while they are technically abstract, conventional units need to be calibrated against some real-world object or phenomenon. The meter, for example, was first defined as a fraction of the earth’s longitudinal circumference. More recently, it has been defined in terms of the distance traveled by light in a certain fraction of a second. Functional units, by contrast, emphasize approximate values of real-world functional convenience, which may, therefore, reflect local conditions and variability in the thing being measured or the tools used to measure. Practicality is prioritized over precision. Many functional units are rooted in human labor or production; for example, estimating field size in agriculture depending on the time needed to plow it (e.g. acres); and numerous others are anthropometric, related to the human body (e.g. hands, feet), from which no abstract conventional unit could ever be derived.

At some point, such functional units can transition into conventional ones—this has happened to units such as the foot in the Imperial system: a unit originally built around the function of roughly measuring lengths with the human body became standardized to an abstract universal value through state (in this case the United Kingdom and United States) intervention during the 19th century. Unsurprisingly, there

- 1 Scientific measuring instruments are often sold on the basis of their high precision, but precision is simply a relative degree of fractionation of known units, which will vary depending on the things to be measured. In fact, ‘accuracy’ or conformity to a notional unit is probably the more generally important economic quality, but there may exist differing degrees of tolerance of variable conformity.
- 2 In the original Polish edition, Kula calls them *znaczeniowy*, which his translator, R. Szreter, rendered as ‘representational’ or ‘functional’; Echterhölter (2019) notes the word derives from *znaczenie* (‘meaning’ or ‘significance’); hence, our recoining as ‘significant’ to capture the semiotic tone.

is considerable overlap in derivation and nomenclature between the two types of unit. To an outside observer, this can cause considerable confusion. Discussion on the infamous ‘megalithic yard’—an academic debate about whether megalithic monuments had been designed using shared length units (Kendall 1974: 19; Porteous 1973; Thom 1962)—may have been improved if the discussants had better differentiated conventional from functional modalities of metrology.

Essential, here, is the idea that societies may emphasize one or other approach in their metrologies. Mensuration under one regime cannot be directly understood from the perspective of the other, even if many of the technologies and practices resemble each other. Kula’s study of the transition from feudal to metric systems provides exceptional clarity on this point: the bewildering array of local weights and measures used across Europe before the widespread adoption (or imposition) of the metric system was not a simple matter of primitive conception of metrology or slow technological progress. Feudal practices of metrology were deeply embedded in localized priorities of production, localized sovereignties—such as between feudal lords and their dependents—and local historical negotiations between these groups. Similarly, where measurement was used in regional or international contexts, such as in market towns, variations in nominally identical units actually functioned to defray transportation costs or provide profit, since prices per unit were legally and morally fixed (Kula 1986: 102–110).<sup>3</sup> Rather than allow a change in the price of a loaf of bread—whose transparent disadvantage to the poor risks political unrest or riots—a common, preferred government policy in early modern Europe was, instead, to downsize the unit by which a standard loaf was measured (Kula 1986: 71–78). This is a tactic familiar even today through the commercial tool of ‘shrinkflation.’ In pre-Enlightenment Europe, we know that it was very common for the same product to be measured with incompatible or variable units in different social contexts. Grain that was measured using a bushel vessel of one size when being collected by the lord or king might be remeasured using a differently sized bushel vessel when redistributed, and yet, the unit would often maintain the same name. Such substitutions were common in feudal Europe and were not always considered tricks by contemporaries, even if later advocates of the metric unification saw them this way.

Unit variability or eclecticism was not limited to feudal Europe. Alternative weight unit systems used within the same cultural contexts is documented as early as the Old Assyrian/Old Babylonian periods of Mesopotamia and Anatolia (ca. 2000–1700 BC). The word *mina* was used to indicate a weight unit in that period, which scholars estimate was equivalent in magnitude to half a metric kilogram. Frequently, contract or archival texts from this period specify whether quantities

3 Medieval theologians and economic thinkers such as Thomas Aquinas argued that everything had a ‘just price’ (Baldwin 1959; Friedman 1980; Hollander 1965; de Roover 1958), and thus, in many premodern European economies, the value of a certain unit of goods (e.g. a bushel of grain or a loaf of bread) was fixed by law to a certain currency value—the currency itself usually measured in weights of gold.

given are according to, say, the “weight stone of the land” (*aban mātim*; the Anatolian *mina*) (Dercksen 1996: 86–89; Veenhof 1972: 54–57), the “weight stone of the city hall” (*aban É alim*) (see also Dercksen 2004: 94–95; Walker 1980: 17) or “1-mina weight of the *kārum* office” (1 *manā’um ša É kārim*) (Dercksen 1996; Veenhof 1972: 58–61). References are made to regional differences, e.g. the “mina of Carchemish” (Hawkins and Weeden 2016; Winter 1983: 189; Zaccagnini 1999), as opposed to the Assyrian *mina* in the later Neo-Assyrian sources. This implies that variation depended on market or jurisdiction and that there was a potential for recalibration in disputes. The evidence for the deep heritage of complex metrological practices reinforces the suggestion that the shape of metrological regimes have fundamental consequences for socio-economic systems and the ideologies of economic systems guide the practice of metrology. Recognizing this means that historical scientists can more systematically explore the possibility—as yet understudied—of predictive correlation between certain regimes of metrology and, to follow Piketty’s (2020) terminology, certain regimes of inequality.

One final point should be made before we turn to our first case study. Metrology relies on metaphor and substitution, and we should always bear in mind the difference between the thing being measured and the quality by which it is measured. Take as an example, the ‘acre.’ The thing being measured is a field, but the way in which it is measured invokes units of labor time (i.e. what area of land can be covered by a plow team in one day). Similarly, while the focus in historical metrology is often on the quantity of *things* being measured, from a political perspective, the more important questions are: *why* things are being measured and *what* consequences do particular regimes of metrology have for wider issues of social structure and governance? We therefore turn to some of the earliest archaeologically documented media for metrology—namely, Neolithic seals and clay tokens from West Asia—and explain the role we suggest they played in the economic governance of early high growth population agglomerations.

### **Metrological governance in egalitarian societies: the case of the first seals and tokens**

Thinking through our elements of a historical metrology, we raise the question: in past egalitarian communities, what mechanisms might have existed for the regulation of social and economic life? Seals and sealings represent early evidence of economic governance, the first examples of which date back at least to the early Neolithic. Seals are durable objects used to impress a symbol onto another material, usually clay or bitumen attached to containers (whether those containers were pots of grain, amphorae of wine, rooms containing archival texts or correspondence sealed in envelopes). Archaeologists often assume that sealings marked private ownership of goods, which implies concepts of exclusive property and the existence of social hierarchies (Nissen 1977; Rothman 2007; Zettler 1987). This may well be the case for cylinder sealings in Mesopotamia, at least from the Ur III period onwards (ca. 2100 BC), where personal cylinders were roughly equivalent to signatures (Pittman 2006: 320–321). However, others have argued that clay

sealings such as those attached to goods in Mesopotamia or Egypt actually served as ‘commodity brands,’ restricting access to *symbols*, rather than tagging specific batches of goods (Wengrow 2008). In contemporary terms, we might call this intellectual property or reputational values.

Yet, there is no reason to assume that seals and sealing practices imply incipient hierarchy or the caching of private wealth. Rather, one of the primary aims of sealing was the verification of identity by the creation and examination of symbolic tokens—thereby regulating who was sending, storing, opening or receiving a sealed container. This function would have been important in many economic transactions, not just ones involving ownership. The motivations behind this social impetus for verification could vary enormously (Ameri et al. 2018; Duistermaat 2010; Skeates 2007). In many regions where we see high economic growth, objects resembling seals are a regular find. This includes stamp seals at early settlements in southeastern Europe (Prijatelj 2007), including the *pintadera* of the Trypillia culture (Budja 2003) or at the late Neolithic and Chalcolithic settlements of West Asia (Duistermaat 2010).

Stamp seals are characterized by intaglio carvings that can be used to make impressions and a distinctive ergonomic shape. Archaeologists often assume that seals provided a mechanism whereby goods—say, grain—could be centrally banked, their ownership tracked and their release regulated (e.g. Frangipane 2007b). The Berber *taqbilt* houses provide an ethnographic analogue for such a system. In these and similar *qasr* structures, mobile or family groups would deposit and withdraw grain from fortified or guarded granaries using seals as authentication tokens (Naji 2010). However, in many early urban contexts, seals outnumber sealings, and fortified or communal granaries are missing. The implication of these differences has perplexed archaeologists. At the very least, especially in cases where there is a relative dearth of sealings or grain banks, we should not assume that the authentication process applied to goods and consider alternatives, including the tracking of labor or credit.

In addition to seals, tokens are also commonly found at many Neolithic settlements in West Asia (Figure 4.1). These were usually small clay or stone<sup>4</sup> objects that took on a limited range of geometric shapes—spheres, cubes, tetrahedrons, pyramids, etc., occasionally with simple impressions or symbols. They were often overlooked in early excavations because of their unprepossessing form and, in contrast to seals, frequent lack of decorative elaboration. Denise Schmandt-Besserat (1992) interpreted these objects as numerical counters used to represent quantities of goods—such as volumes of grain, number of sheep, areas of land—as part of agrarian accountancy. The formal similarities between Late Chalcolithic (4th millennium) incarnations of these object types and the earliest metrological and/or numerical symbols found in archaic cuneiform from the end of the 4th millennium has convinced most Assyriologists of a historical—if not

4 Admittedly, they may also have been made from less persistent materials, but have simply not survived in the archaeological record.



*Figure 4.1* Map of showing the distribution of Neolithic (and Chalcolithic?) tokens (data from Bennisson-Chapman 2019). 1 = ‘Ain Ghazal, 2 = Boncuklu Höyük, 3 = Çatalhöyük, 4 = Jarmo, 5 = Tell Sabi Abyad

evolutionary—development from tokens to certain cuneiform symbols (Friberg 1994). Subsequently, tokens were found closely associated with sealings in a number of well-excavated Neolithic and early Chalcolithic contexts (Akkermans and Verhoeven 1995; Bennisson-Chapman 2019: 7; Robson 2007).

Various specifics of Schmandt-Besserat’s ideas about tokens have received criticism, and just as with seals, many alternative functions have been proposed (for a recent summary, see Bennisson-Chapman 2019, 2020). Certainly, the idea that particular shapes might have maintained a universal codified meaning across different Neolithic settlements—for example, that pyramids always represented sheep—is implausible, given their morphological heterogeneity, the extended chronological length of usage and variety of archaeological contexts in which such tokens have been found. As Piotr Michalowski has pointed out, we cannot assume that “all of



them served the same function, [or] had the same general semantics” over a period of at least 3,000–4,000 years (Michalowski 1993: 997).

Nonetheless, the idea that tokens were used to materialize and track numerical quantities—i.e. served mensurative or enumerative economics—remains persuasive. Surprisingly, despite emphasizing their role in accountancy and recording economic transactions, Schmandt-Besserat did not actually offer a picture of how tokens might have functioned in practice; merely that they were part of a reckoning technology (Schmandt-Besserat 1992). Schmandt-Besserat’s main agenda was to provide a radical new origin story for writing based on the primacy of numeracy, rather than to contribute to economic history *per se*. This concern makes sense in the context of Assyriology, in which the origins of writing are a discipline-defining topic. But having some ideas about the practical mechanics of how such tokens might have been used, even if speculative, are essential to putting them into the context of long-term trends in the organization of human economies and the role of metrology in their transformation.

We begin with the widely accepted idea that the tokens had something to do with recording transactions. But what materials were involved in these transactions, and through what sort of social relationships did they occur? One of Schmandt-Besserat’s arguments is that the early tokens cannot be connected with regional or long-distance trade (Schmandt-Besserat 1992: 167–168). We agree with this point. She suggested that tokens were only involved in the local regulation of farming products, particularly grain, and perhaps, by the 4th millennium BC, products such as textiles for local consumption (1992: 168–170)—an association confirmed by contexts such as those at Sabi Abyad. Subsequent studies have found no basis to refute this. Placing the token phenomenon within the context of local transactions that did not involve exotica or preciosities would seem to be an essential framework for understanding them. But why would the inhabitants of Neolithic villages across West Asia have wished to record transactions of local or basic agro-pastoral products?

Schmandt-Besserat argued that tokens indexed the “creation of an elite overseeing a redistributive economy” (Schmandt-Besserat 1992: 170), who required accountancy for “keeping track of entries and withdrawals of commodities.” If this were true, tokens would be the sole evidence for such elites. As discussed in Chapter 2, no large Neolithic (or Chalcolithic) settlements from South Asia or West Asia have yielded evidence for any wealth inequality of consequence. We contend that to assume this association between tokens and stratification is just another example of elite determinism. If we take the evidence at face-value—that most Neolithic societies of West Asia had little wealth inequality—then we must assume that tokens could be used in transactions only by households and individuals of broadly equal wealth.

This context has consequences for the mechanics of token use. The first point to make is that tokens are unlikely to have been used as a means of bookkeeping or to keep track of internal household resources. Scholars have the strange tendency to assume that humans have an irrepressible desire to count things and to keep records of their accounts for posterity. In truth, people seldom bother with record-keeping

unless there is a pressing need. It is extremely unlikely, for example, that you have an inventory of all the junk currently residing in your attic—or how many kilograms of food are currently in your fridge. In most contexts, we only need accounts because we are interacting with some institutional entity—such as a company or a government—that is external to our household. Archives or records are required when we are dealing with so much information that we are unable to accurately remember or verify it all without using some sort of extrasomatic technology. For the inhabitant of a Neolithic village—or even a larger Neolithic city, such as Çatalhöyük, in ancient Anatolia—there is little obvious reason to maintain an archival account of anything. If you want to know how many sheep, cattle or pigs you are responsible for—or how many you can put up for a brideprice or dowry—marriage alliances being one of the few ethnographic situations where exact reckoning is common—you can go outside and count them.

Moreover, the argument that tokens were precursors of written archives becomes untenable when you consider the tiny amount of information they could encode. If we follow Schmandt-Besserat, a single token might possibly encode a category of good and/or a number, either one or some larger base (e.g. 5, 10, 30 or 60), to represent a herd unit. In other words, any given clay token encodes one or two glyphs or logograms. A typical assemblage of tokens numbers in the tens, or rarely, in the low hundreds. The amount of information encoded within even a relatively large assemblage of 100 tokens would therefore be equivalent to a few hundred bytes—in modern terms, about ten short sentences. Assuming that they had a single structured numerical meaning, the entire corpus of 695 tokens excavated at Çatalhöyük thus far (Bennison-Chapman 2019), which spans many centuries of occupation, would be equivalent to a very small data table. Bennison-Chapman's database of tokens from West Asia lists just under 3,000 items across 23 sites. These are clearly only a fraction of the likely original number across the whole region and over the millennia, but so far, it seems implausible that any of these assemblages functioned as regular internal archives; the quantity of data encoded is simply too small. This does not mean that the tokens were not encoding economic information, but it does mean that their functions were not primarily archival.

Schmandt-Besserat concentrated on the idea that tokens directly symbolized quantities of material goods—such as grain or animals—presumably because this is what was denoted by many of the earliest cuneiform texts in West Asia. But Neolithic tokens could easily have served as materialized records of more abstract economic transactions—facilitating the distribution of labor duties within or, more likely, between households of a given community. From a metrological point of view, the dimension being measured may have been labor, but the units by which labor was measured were symbolized by the goods produced.

In the mythology that underpins neoclassical economics, there is an evolutionary sequence that runs from barter to money to credit instruments. In the beginning, people supposedly bartered one object for another in primitive, currency-less markets. Eventually, money—in the form of shells or coinage—was invented as a more efficient medium of exchange, making market transactions a great deal easier. Finally, people created a growing range of credit instruments—like

cheques, bankers drafts, promissory notes, bills of exchange, etc.—to replace the metal tokens to which they had become accustomed. Yet, as David Graeber (2011) demonstrated by drawing from a substantial body of evidence within economic anthropology (e.g. Dalton 1982; Humphrey 1985), the neoclassical evolutionary sequence has no basis in history. If we abandon it, a wider range of interpretive possibilities arises, allowing us to consider the potential existence of credit instruments in ancient contexts, long before coinage was invented. This includes the possibility that the tokens functioned as Neolithic credit instruments; specifically, as materialized debts. In effect, they would have fulfilled some of the most basic roles of money.

Indebtedness is a social relation between at least two persons. Debts are, for the most part, inalienable, meaning they can only ever exist between the people that originally created the debt. For instance, if my neighbor lends me their oxen to help plow a field, they might later ask for a portion of the wheat grown in that field as a repayment of the debt. Debt relations have existed for as long as human societies have existed. But, in principle, it is possible to objectify indebtedness, making it less a social relation and more of a *thing*. This would permit the creditor to transfer the debt to a third party, and this third person could then claim the wheat instead, even though it was not they who originally lent out the oxen. In the modern world of ever-proliferating credit instruments, people buy and sell debts all the time. According to traditional economic theories (e.g. Waterman 1930), this practice of creating alienable debts was invented sometime in the late Middle Ages, often referred to as a negotiable promissory note. These originated as written accounts of a debt, which were able to be redeemed by third parties. The key characteristic of a negotiable credit instrument was that the owner of the debt was the person who held the note in their physical possession. Such artifacts provided the inspiration for modern banknotes, which are effectively promissory notes issued by the state, although being issued by a sovereign completely changes their nature, since, unlike private notes, they can be used to pay one's taxes.<sup>5</sup>

It would be remarkable if negotiable promissory notes had only existed for about 700 years, since there is nothing particularly complex about them, either as a technology or as an idea. All that is needed is a physical token that represents the debt in a mutually agreed fashion, which can then circulate as an object of exchange. Why did no one ever think to create such artifacts throughout the preceding millennia of human history? In fact, given the plentiful reference to complex credit instruments found in texts written by Old Assyrian merchants during the 2nd millennium BC (Veenhof 1997)—to whose role in past human economies we turn in

5 Banknotes in Pounds Sterling issued by the Bank of England still bear a relic of this history, printed with the phrase 'I promise to pay the bearer on demand the sum of X pounds.' This pledge is now meaningless, since, presumably, the bank would simply exchange your banknote with another banknote (i.e. a promise for a promise). But the archaic language recalls an earlier time when private promissory notes were often used as a currency, as distinct from the metallic coins issued by the sovereign.

the next chapter—it would be no surprise to find that tokens of materialized debts were in circulation millennia earlier. More likely they did exist, and the problem is that no one has been looking for them in archaeological contexts.

Village agro-pastoralists seldom need to record their debts through complex information technologies and can maintain complex debt relations through social memory. This is why writing is largely a feature of urban or citadel communities; a certain demographic scale or a concentration of material flows is required before the volume of transactions begins to exceed human cognitive capacities. Indeed, the purpose of a promissory note is less to record the debt and more to materialize and make it transferable. Only once indebtedness exists in a physical form can it be circulated as if it were an object. It therefore seems unlikely to us that the Neolithic populations of West Asia created clay tokens to remember their transactions; it is more plausible that we are dealing with a system for alienating debts, analogous to the promissory notes of later times. Rather than counting entries and withdrawals of discrete quantities of goods in a household, warehouse or tax/tribute assessment, Neolithic tokens could have functioned, instead, as virtual or promissory debt notes. As Freidel et al. (2017) have provocatively suggested in the context of early Mesoamerica, small tokens thus imagined through the lens of David Graeber's arguments about the economic primacy of debt act rather like monetary currency.

On the face of it, clay may seem an odd material for a currency; we are used to thinking that money is made of metal—even though in the modern world, most monetary transactions do not involve coins and world currencies have been unpegged from bullion since the 1970s. In fact, promissory notes have always been created from nearly worthless substances, like paper. They only need to transmit enough information to allow the user to identify the original issuer and trust that a debt maintains its redeemability. Modern state-issued currencies, such as Bank of England banknotes, require rather elaborate systems to persuade users of the authenticity of the original issuer: watermarks, complex iconography, holograms. Some of the first metal-based sovereign currencies similarly relied on material features: iconographic stamps or difficult-to-obtain materials like gold, the production of which was closely controlled by royal institutions (Desan 2014). In smaller-scale settlements typical of the Neolithic, where populations rarely breached the low thousands, the level of verification required to identify source issuers was minimal; it may have been enough to know that a certain household or clan produced certain shaped clay tokens. In small settlements, costly monitoring for fakes would therefore not have been necessary.

### **Materialized debts, sovereign money and organizing the labor of strangers**

In most social contexts, it is inappropriate for close friends and kin to keep precise accounts of their exchanges. Reciprocal exchange is important in almost all social relations, but precise accounting of those interactions is often deemed highly anti-social. Indeed, this is why we remove the price tag before giving someone a gift; recipients are not supposed to know exactly how much their gift

cost the giver. In a Neolithic village, most everyday social interactions would have involved friends, neighbors and kin, meaning that a majority of transactions were likely governed by cultural conventions associated with gifting (e.g. Mauss 1925). This does not mean exchange relationships in which precise accounts were kept were absent, but we can assume that only a small subset of transactions could have operated according to such mercenary logics. Under what conditions could such precision transactions be deemed appropriate for members of Neolithic societies? It is worth recalling, here, the continuum of reciprocal exchanges developed by Marshall Sahlins (1972: 194–199). Generalized reciprocity, which goes unaccounted, builds solidarity within social groups through an internal flow of goods. Balanced reciprocity, rather, creates ongoing social relations between different social groups by specifying what is exchanged. The expectation, both of continued exchange and of social distance, requires the materialization of particular kinds of information. Negative reciprocity reflects anonymous transactions amongst strangers without expectation of ongoing future interactions.

Typically, we can imagine two main contexts in which precise accounting of debts might have been allowed, the first of which is exchanges of goods between relative strangers. This would most likely include marriages or other alliances between unfamiliar groups where guarantees of generalized reciprocity were lower. The second context would be the management of labor involving larger corporate groups than normal, such as the building of public structures or seasonal tasks involving the whole village or town. As mentioned earlier, there is little evidence that Neolithic tokens were associated with long-distance trade in obsidian or similar exotics. Tokens clearly had little value beyond their very local economic networks. This means that the first context, transactions between relative strangers, was probably less important. Unlike in cities, interactions between strangers were relatively few in Neolithic villages, and extended kin networks would have regulated the majority of work. Far more likely, we imagine, would be the second context of large-scale communal labor organization. Household or individual contributions to collective endeavors could more conveniently be accounted through abstract and precise alienation in the form of tokens.

Of course, we cannot know exactly how such Neolithic promissory notes worked but suspect the mechanisms were similar to those of later small-scale monetary systems. The orthodox definition of money focusses on its role as: (1) a medium of exchange; (2) a store of value; (3) a unit of account. To this list, we may add (4) a means to direct the labor of the currency-using community (Desan 2014: 24–37). In modern fiat currencies (which includes base metal coins, plastic notes and immaterial digital ledgers), the sovereign (or, in non-monarchist systems, the sovereign state) has a monopoly on issuing currency tokens (dollars, pounds). Currency issuers, such as the king or government, spend tokens in exchange for labor services or goods they require and simultaneously create a demand for these tokens by insisting that all citizens/vassals/subjects pay tax in that same token currency. Such tokens then take on a generalized private medium of exchange role because their value is maintained by the fact that someone will

always need tokens to pay tax at some future point. Private economic activity may also be facilitated by the issuing state currency—at least, where currency systems are already known (Desan 2014). Taxation of tokens is a far more flexible system from the point of view of centralized governments than exacting tribute in kind, as it allows the sovereign to quickly change its spending priorities—for example, toward war or particular architectural projects—without overtly changing the structure of the tribute itself. As Modern Monetary Theory (MMT) reminds us, political choices by a powerful sovereign regarding who has to pay taxes, who receives direct payouts and what services the government requires ultimately direct the flows of real materials and, not coincidentally, effective levels of wealth inequality (Kelton 2020; Wray 2015).

Modern coins, banknotes and electronic money are debt notes. But they are not debts between equals. The logic of a sovereign-subject political economic system is that if a subject fails to pay taxes, the sovereign must mete out violent consequences—fines, imprisonment, enslavement or worse. Even in modern liberal societies, the least powerful are the ones most likely to pay the highest consequences for tax evasion, as they are for failures to pay other debts—a point made powerfully by David Graeber (2011). The currency issuer always has more political power than a currency user. Moreover, whoever has a say in the decisions of the sovereign—whether manifest as a monarch or some other centralized authority—is key to establishing particular regimes of wealth inequality and the success or failure of particular collective cultural projects. In contrast, the idea of using debt tokens in a social context where there appears to be little centralized political control or wealth inequality, as we see in Neolithic and Bronze Age cities, represents a challenge for the economic and political imagination from the modern perspective. Perhaps this partly explains why most histories of money start with discussions of currencies made from materials seen to have ‘intrinsic value’—notably, metal coinage or bullion. How, then, can systems of materialized debts, of promissory notes and other currencies without independent commodity value function in the absence of hierarchical authorities?

There are different ways to address this question. First, we note that non-sovereign forms of currency are not actually that unusual. One of the most widespread examples is the tendency of prisoners to use tobacco as a form of money—a phenomenon observed throughout the 20th century in both civilian penitentiaries as well as prisoner-of-war camps (e.g. Lankenau 2001; Radford 1945). More importantly, however, we should question the premise that sovereignty, currency and governance are, in fact, historically restricted to centralized and hierarchical societies. There is no reason why egalitarian societies cannot make demands, sometimes considerable, upon their members for either labor or goods in the service of wider goals. Indeed, egalitarianism does not equate to extreme individual freedom; quite often, the contrary is true. We can imagine multiple collective agents—households, clans, sodalities—invested with the power to issue tokens in exchange for particular labor priorities—perhaps to enlist the labor of sub-groups during concentrated periods of need, such as harvest—and demand tribute in the redemptive recollection of tokens in ritual performance of debt relations. Intrinsically valueless tokens,

like clay shapes, could thus form an effective system of labor management for growing heterarchical communities in the absence of wealth inequality.

Thus we can offer some speculations on how Neolithic tokens might have circulated or directed labor in practical terms, which are much more plausible than the pernicious myth that barter predates money. Imagine that a past social group—larger than a nuclear household—has a need for concentrated labor at harvest time, as is typical for small-scale agrarian societies where labor requirements are highly seasonal. Tokens may be issued during the harvest to various individuals as payments to incentivize their labor contributions. The harvest is duly collected and containers full of grain are stored for the following year. Come some predetermined calendrical date, a thanksgiving festival is organized where tokens are required in order to participate. However, if the tokens are deemed to be materializations of debts, they can circulate even more widely. Thus, harvest participants may transfer their tokens to kin or other members of the corporate group, fulfilling internal obligations through community participation. There might be a strong incentive for juniors to collect these tokens, as large-scale festivals might be the stage for meeting others and ultimately arranging exogenous marriages. The key point is that the tokens are alienable: while they can only be redeemed at the festival organized by the issuing clan, it need not be the original labor contributor who spends the token, allowing the token to circulate as private currency during the interim in exchange transactions.

Now, consider the possibility that, in a bumper year harvest, needs are such that the pool of local labor for harvest is inadequate, so the clan issues tokens to relative strangers from neighboring regions, who can, themselves, spend the tokens in exchange with others or use them directly during the subsequent festival. In this imagined scenario, while tokens serve as material vehicles for asymmetric or unusual obligations, they do not become long-term universal currencies—it is not possible to hoard such tokens, and there is no advantage in doing so. Indeed, this is not so dissimilar to many ancient coinage systems, where every few years, all coins had to be returned to the mint and re-issued; older issues were no longer taken as taxable, and only their bullion value could be realized (Desan 2014).

Clay tokens were used across West Asia for millennia and extended into regions to the south of the traditional Neolithic heartlands of the Fertile Crescent (Bennison-Chapman 2019: 3). It seems unlikely that their function was uniform across the full 5,000–7,000 years during which we find evidence of their existence. However, the teleological interpretation of such tokens as precursors to later forms of writing is not particularly helpful. Given the extended duration of their use, we should think more in terms of the social functions they fulfilled, rather than fixate on the idea that they were a very slow step along the road to cuneiform. This approach is supported by the fact that tokens did not actually disappear following the advent of cuneiform tablets, indicating that they were not in fact rendered obsolete by writing. Our arguments in this chapter are an attempt to expand the archaeological imagination regarding the clay tokens of the West

Asian Neolithic, and by extension, toward ancient currencies and credit instruments more generally.

### **Numeracy and mathematical operands: the significance to ancient economic organization**

The fundamental ability to count is probably shared with many animals and simply reflects an evolved cognitive ability to differentiate objects—something that has been referred to as the ‘number instinct’ (Harrison 2007: 167, 180–184; Nieder 2019; Wynn 1992). This cognitive capacity is distinct, however, from numeracy. Numeracy involves the development of shared number systems to communicate number-based meaning. Over the course of human history, people seem to have developed a large variety of such systems, involving different media to communicate number. The most obvious are linguistic signifiers—numerals one, two, etc., but also half, double, treble and grammar that flags single/plural distinctions—alongside bodily gestures like hand gestures, and a wide array of material signifiers—tallies, tokens, number graphemes, graphs or arrays of binary transistors. The cognitive and symbolic architecture of numeracy we learn as children is so deeply enculturated that it is often difficult to think beyond the particularities of our own experiences. The mobility of number structures between distinct languages, especially according to a need to engage with distant or colonial exchange partners, means that even avid learners of foreign languages may never encounter truly alternative systems (Greenberg 1978; Harrison 2007: 196–198).

Ethnolinguistic researchers have, nonetheless, uncovered a wide variety of systems, etymological sources and lexical structures for constructing numerals. At the broadest level, number systems may be:

- (1) generative, allowing the construction of ever larger (or smaller) numbers and exact or unambiguous structures;
- (2) restricted, with a small range of integers (e.g. one, two, many), ambiguous or inexact numerals;
- (3) or finally, in a few rare examples, entirely non-existent (Everett 2005; Frank et al. 2008).

This last point is important because it highlights the fact that the presence of numeral systems is not a necessary prerequisite for human life but a socio-technology (*sensu* Pfaffenberger 1992) that may be absent or present for historically specific, or adaptive reasons.

In generative systems, number bases—such the base-10 used in decimal numeracy—enable the construction of ever larger or smaller numbers. They are worth particular attention because they provide cognitive structure to numerical thought, and thus, different practical affordances in different contexts (Chrisomalis 2020). Today, number systems that use decimal exponent bases are dominant,



as in modern English or Chinese.<sup>6</sup> Some bases have a greater number of factors than others, which affords more options for division into equal integer quantities,<sup>7</sup> whereas prime numbers offer no division opportunities. Hence, small number bases tend to be more common; namely, vigesimal (base-20), hexadecimal (base-16), duodecimal (base-12), octal (base-8) and quinary (base-5). In some cases, hybrid combinations of alternating bases may be found. Well-known examples include alternate multiples of 5 and 10, as in Roman numerals, and 10 and 6, as in the Old Babylonian system of numerals, which has often been incorrectly characterized as sexagesimal (base-60) (Chrisomalis 2010, 2020; Comrie 1997, 1999, 2013). The frequent preference over recorded history for the middle groups of base-20 and base-12 is, presumably, related to the ease with which quantities can be divided into halves, and to a lesser extent, thirds and quarters. This provides reasonable grounds to infer that a large proportion of the world's dominant numeral systems emerged in social milieux where fractionative metrology—the division of countable things either for distribution or trade—were of high priority in the invention and adoption of numeracy.<sup>8</sup>

To underscore the inherent social and political implications of particular numerical bases, consider the recent monetary history of Europe. Throughout the Middle Ages, European societies used a range of similar non-decimal monetary systems that relied on a combination of base systems. In the old monetary system of the United Kingdom, for example, 12 pence made one shilling, and 20 shillings constituted one pound sterling. Such a system was well-suited to rapid mental arithmetic involving the multiplication and division of quantities and was very likely designed with relatively high-value exchanges between merchants in mind. Despite the fact that this system worked well at facilitating trade, it was not, however, ideal for taxation. Indeed, medieval taxes were notably blunt instruments. They were usually levied as fractions, such as tithes—a biblically derived tenth of productivity—or the *quinto real* (royal fifth). Poll taxes, levies of a flat amount per capita, were often demanded as well, and given their regressive nature, frequently caused rebellions and uprisings (e.g. Goldberg 1990). It is very difficult to fine-tune taxes using fractions with small denominators, i.e. portions of integers between 2 and 10. By contrast, expressing fractional taxes as a *percentage* (i.e. out of 100 parts), which depends on widespread adoption of base-10 numeracy, means that demands can

6 Arabic numerals are shared by both English and Chinese numeral notation and rely on uniform exponent of 10 for each place position; both English and Chinese oral lexicons use the exponents of 10 as numerical bases (tens =  $10^1$ , hundreds =  $10^2$ , thousands =  $10^3$ , millions =  $10^6$ ), but Chinese additionally provided intermediate exponents not used by English (*wàn* =  $10^4$ , *yì* =  $10^5$ , etc.).

7 By way of comparison: 10 can be divided by 5 and 2; 8, by 4 and 2 (two factor bases); 20 can be divided by 2, 4 and 10 (three factor base); 12, by 6, 4, 3 and 2 (four factor base); and 60, by an impressive 30, 15, 12, 10, 6, 5, 4, 3, 2 (9 factor base).

8 The same may be said of the dearth of early metrological systems relying on unit exponents because there is no single inverse procedure (root or logarithm), whereas unit multiplication is matched by division. The exception is in spatial areal or volumetric measurements based on linear ones where it is less necessary to want to find the root. Trading societies such as the Babylonians, instead, settled on an alternating 10–6 multiplicative bases; Romans, on 5–10; both systems easier to compute.

be easily and precisely adjusted to suit changing political and economic circumstances. From one year to the next, the tax rate can go up from 21% to 23.5% or drop back down to 19%, and so on. It is no coincidence that European societies began to decimalize their currencies around the same time as they introduced dynamic tax rates, such as those based on income, as their primary means of raising revenue.

Many, if not most, numerical metrological systems develop modular units (e.g. pounds and stone, kilometers and meters), dependent on two mathematical operands: multiplication and division.<sup>9</sup> These operands represent two complementary but distinct social functions of real-world economic metrology: *enumeration*, or finding and recording the exact counted quantities of some entity or object, for production, exchange, taxation or marking prestige; and *fractionation*, or dividing entities into fractional quantities according to established rights, for distribution or collection of goods or of labor. While, mathematically, these are neutral actions, in real-world economic terms, these operations have vastly different practical applicability, and hence, social implications. This is because enumerative metrology on goods has no effective upper limit, so you can keep growing and counting ever larger numbers of sheep or grains if you have a generative number system. Enumeration is, thus, economically infinite and implies the possibility of unending growth. On the other hand, fractionative metrology on real goods rapidly encounters lower limits. You cannot divide a sheep without killing it, and even if you do, there are limits on the number of individuals to whom you can distribute its constituent parts. Dividing a grain of barley, for instance, might be the epitome of impractical economics. Fractionation, though mathematically infinite, is strictly finite in economic terms. The real-world dimension being measured and the human perspective of the action may dictate the metrological mode that dominates. For example, over human history, most linear measurements follow the enumerative mode—space on earth is finite, but early distance measurements usually were built from small human-scale units, e.g. multiple of foot lengths, rather than dividing a predefined length such as the circumference of the earth. Meanwhile, basic units for measurements of time often follow the fractionative mode, in which units are derived from the division of years and days.

These apparently mere technical details actually have important consequences for how we think about the social meaning of units, as actual measurements of physical things or as virtual rights. The distinct logic of each mode on the same notional dimension also creates opportunities for mystification. Compare, for example, the measurement of economic growth versus returns on capital. Economic expansion is measured enumeratively—theoretically, the economy can ‘grow’ infinitely. Returns, by contrast, express how growth is distributed across a

9 In the modern metric system, units are multiples or factors of 10 (e.g. a meter is equal to 100 centimeters); this is convenient computationally in a notation system that is strictly decimal. The so-called Imperial unit system maintains non-decimal multiples (e.g. 12 inches is a foot), easier to compute division without notation.

population, and by definition, assume a fractionative mode.<sup>10</sup> Put another way: in monetary terms, one individual's wealth is measured using enumerative units (in the modern day, units such as dollars, pounds, euros or renminbi); thus, one feels richer if you have a pay raise. But, in fact, income is really a proportion of the total wealth being generated at any time and thus relative to everybody else's income. Income is measured in a unit which itself is a fraction of the total amount of money being created. That the same unit of money is used to measure wealth, incomes, taxes and public spending—but modeled using different modes—helps to obscure economic inequalities, accidentally or otherwise. Chartalist theories of money (e.g. Knapp 1924; Mitchell-Innes 1913), which are implicit in MMT, argue that public spending comes before taxation even if, simultaneously, the state could not spend without the enforcement of taxation (Wray 2015). Likewise, fiat-fiduciary money can, theoretically, be created infinitely, as money is simply a numerical fraction of the economic power of the state. Private wealth, however, can only be measured using enumeration of these arbitrarily established fractional units; an illusion that provides one of the logical disconnects between how money works, from the perspective of a currency user versus that of the currency issuer. We will return to a discussion of the different modes of money shortly.

These sorts of sleight of hand or, more neutrally, substitutions are typical in the field of mensuration. In the case of Neolithic tokens, the Schmandt-Besserat interpretation suggests that each token unit followed a simple enumerative mode. Tokens enabled the counting up of sheep or bushels of grain. While we reject the idea that their purpose was to count goods directly, this does not mean the debts they represent were never denominated in goods. Neolithic farmers, no doubt, had clear conceptions of the approximate equivalency between the labor to rear a flock of sheep and the labor to sow and harvest grain, even if they did not regularly quantify these. Thus, quantities of grain or numbers of sheep would represent sensible units—as metaphorical mensuration categories rather than exact quantities—by which labor debts and rights to draw on the labor or goods of others could be described. Each token might represent a notional quantity of goods. We might call this form of quantification a 'ration,' but we should not take this to imply scarcity, nor should we expect that they were redeemable only in earmarked real resources.

Intriguing support for this interpretation comes from cuneiform texts dating to the late 4th millennium, the Late Uruk period, when tokens were still used in the city settlements of Mesopotamia. By this point in West Asia, it is common to find sealed clay envelopes containing geometric tokens called *bullae*. These envelopes may have been used to package debts, quite literally, in much the way that modern financial agents collect and package alienable debts into complex financial instruments in metaphorical ways (Skidelsky 2018: 322–326). One notable characteristic

<sup>10</sup> Such rights are also often framed and justified in the language of debts, even where such debts may not have been freely entered into; see Graeber 2011.

of the earliest writing in Mesopotamia that appeared soon after the *bullae* is the strong apparent concern with precise recording of metrological quantities. Several different symbols for number notation have been recognized in the earliest archaic texts. In fact, there were multiple numeral systems, and based on reverse reconstruction from later symbols, each of these appear to have allowed the counting or measuring of a certain range of products (Powell 1971, 1995; Robson 2007). Metrology, as recorded at the dawn of Mesopotamian cuneiform creation, around 3100 BC, was based on counting discrete items, like sheep, or containers of products, like grain in bowls or bags. Many such early texts consisted primarily of quantified lists of goods (e.g. Friberg 1994), with labor precisely accounted for by using conventionalized rations in products per certain rounded numbers of days (Steinkeller 2015). We cannot know whether we are supposed to read these texts as concrete wages, so that these exact quantities were distributed once the labor was completed, or whether, alternatively, they represented accounted bankable rights. We should briefly note here the in-built paradox in the concept of rations: while absolute fairness in the distribution of labor or goods implies fractionative quantification—ideally under an egalitarian ideology, one wants to divide the resources and efforts of a community equally—practicalities of distribution and measurement mean that the enumerative mode—countable standard quantities—is the one used to disperse rations.

Where tokens may have helped direct the flow of labor as part of the governance needs of growing Neolithic populations, new technologies emerged during the Bronze Age in West Asia that signal a new relation between labor, goods and the assessment of value that may have placed restrictions on governance. Very rapidly during the 3rd and 2nd millennia, we can identify new types of metrology: weight using a balance, length using rods, area (especially fields) using rope, time using water clocks or *paraepgmata* (see Table 4.3). The earliest relevant texts show that numeracy across the egalitarian cities of Mesopotamia during the 4th millennium was eclectic; notation systems for different items followed different combinations of alternating bases (including 5, 6, 10 and 12). It is only later—around 2300 BC but perhaps more widely from the early 2nd millennium—that the Babylonian sexagesimal system (which actually used alternating multiplicative bases of 10 and 6) became nearly universal across cuneiform texts (Chambon 2011; Chambon and Robson 2011; Robson 2012).

Most importantly to our argument, there is no particular reason to assume that these metrological systems, which were initially highly eclectic, originally served a ruling class. This is not surprising if, as suggested by the morphological similarity of some early cuneiform metrological symbols and the contemporary 4th millennium tokens, that metrological numeracy had a long, if non-linear, heritage in broadly egalitarian systems of economic governance, going back to the Neolithic tokens discussed earlier. It was within this eclectic, specialized but egalitarian economic context that a radically new form of metrology—balance weighing—first appeared. We now turn to the consequences of this innovation and the rise of a new form of money based on the logic of this new technology.

Table 4.3 Modes of metrology, measuring instruments and their product associations of West Asia (and Egypt) during the Bronze Age and Early Iron Age.

<i>Mode metrology</i>	<i>Measuring instruments<sup>[1]</sup></i>	<i>Products measured using mode</i>	<i>Named units<sup>[2]</sup></i>	<i>Primary contexts of use or probable primary purpose</i>
<b>Axiometric (weighing)</b>	Balance (pan and rod; stone weights)	Metals (gold, silver, copper, bronze, tin, lead) Precious stones (lapis lazuli, carnelian, amber) Textiles (late 3rd millennium)	—EN System E (for metal) —Generic: <b>grain, shekel, mina, talent</b> [Sumerian: še, gin <sub>2</sub> , ma-na, gun <sub>2</sub> ; Akkadian: <i>uṭṭatu, šiqḷu, manû, biltu</i> ; ratio steps: » x180 » x60 » x60]	<b>‘International’ trade</b> Currency (exchange price and debt accountability)
<b>Volumetric (capacity)</b>	Measuring vessels (dry ‘bushel’ or liquid ‘pint’ containers)	Grain (barley, wheat) Beer Milk	—DUG <sub>c</sub> System Db (for beer) —ŠE system Š (for barley) —ŠE system Š* (for malt) —ŠE system Š* (for wheat) —ŠE system Š* (?wet capacity) —Generic: <b>shekel, bowl, vessel, bushel, ‘cube’<sup>[3]</sup></b> [Sumerian: gin <sub>2</sub> , sila <sub>3</sub> , ban <sub>2</sub> , ba-ri <sub>2</sub> -ga, gur; Akkadian: <i>šiqḷu, qû, sûtû, parsiktu, kurru</i> ; ratio steps: » x60 » x10 » x6 » x5]	<b>Taxation, tribute and ration redistribution</b> Currency (exchange price and salaries)
Mikrosmetric (lengths)	Measuring rods <i>Measuring ropes</i>	Bricks and buildings	—DU system —Generic: <b>grain, finger, foot, cubit<sup>[4]</sup>, step, reed, rod<sup>[5]</sup>, cord, cable, league</b> [Sumerian: še, šu-si, šu-du <sub>3</sub> -a kuš <sub>3</sub> , ġiri <sub>3</sub> , gi, nindan, eše <sub>2</sub> ; Akkadian: <i>uṭṭatu, ubānu, šizû, ammatu, šēpu, qanû, nindanu, aslu</i> ; ratio steps: » x6 » x20 » x3/2 » x2 » x3 » x2 » x10 » x6 » x30]	Craft Urban building and construction
Geometric (areas)	<i>Measuring ropes</i>	Fields	—GAN <sub>2</sub> System G (field measurement) —Generic: <b>shekel, ‘garden’</b> (= 1 x 1 ‘rod’), <b>quarter-field, half-field, field, estate</b> [Sumerian: gin <sub>2</sub> , sar, uzalak, upu, iku, bur, uš, da-na; Akkadian: <i>šiqḷu, mūšaru, ?, ubû, ikû, bûr, uš, bêru</i> ; ratio steps: » x144 » x25 » x2 » x2 » x18] —‘brick-garden’ (for 720 bricks) [Sumerian: šeg <sub>12</sub> -sar; Akkadian: <i>libittu-mūšaru</i> ]	Tax survey/assessment Redistribution of land

Chronometric (time)	<i>Clepsydra</i> (water-clock) <i>Parapegmata</i> (calendar)	Human labor Travel	—U4 System U (for calendar) —Generic: <b>minute, watch, day, month, year</b> [Sumerian: <i>mu-eš, da-na, ud, itud, mu</i> ; Akkadian: <i>ḡeš, bêru, immu, arhu, šattu</i> ; ratio steps: » x30 » x12 » x30 » x12]	Corvée duties Labor duties Distances between places
Arithmetic (counting)	Abacus Written metrological notation Note also that many early volumetric, geometric units were effectively simply counts of particular containers	Livestock: reared or hunted animals (sheep, cattle, fish, pigs), fish, slaves Deadstock: animals, beers Craft objects: containers Processed food: bread, milk products Rations: cereal grains or groats Fields	—Sexagesimal System S (for slaves, animals, fish, wooden objects, containers) —Sexagesimal System S' (for dead animals) —Bi-Sexagesimal System B (cereal, bread, fish, milk products) —Bi-Sexagesimal System B* (rations [of barley]) —ŠE System Š* (barley groats) —Generic: 'Sexagesimal' numerals	Ration redistribution, debt accountancy Internal 'trade' and exchange

[<sup>1</sup>] Textually or materially unattested in italics.

[<sup>2</sup>] This is necessarily a simplification of the full range of textually or materially attested units known between 3500–500 BC. Those listed in bold were part of the unified system of measures, abstract numerals and many of these units which emerged during Akkadian period (ca. 2150 BC) with specific often 'sexagesimal' ratios; some of these (the earliest ones are underlined) were also named units in earlier periods, though not unified into a single absolute system. Many early/archaic units, later abandoned (in Roman script) had very specific relationship to particular items to measure, which did not relate to abstract numerals, and used different sets of base units, not just 'sexagesimal.' Note that metrological systems often used different or alternating multiplicative bases between the same class of metrological units, to inter-compare units of different magnitudes, and the idea that there is a single 'base' unit against which all others are calculated on a single ratio would therefore be misleading.

[<sup>3</sup>] The linguistic distinction between length, area and volume was usually based on single units. The 'Royal Gur Cube,' as a theoretical volumetric unit, was calculated on the basis of 1 square nindan x 1 cubit (so 12 x 12 x 1 cubits) of a liquid. It has been estimated to represent around 3,000 metric liters.

[<sup>4</sup>] The cubit is the length of the lower arm—e.g. from elbow to wrist or middle finger; the earliest archaeological example of a possible cubit rod in Mesopotamia is the copper alloy Cubit of Nippur, dated ca. 2650 BC, now in the Istanbul Archaeological Museum; in Egypt, many more cubit rods are known, due to the better preservation of wooden artifacts.

[<sup>5</sup>] The (~6 meter) 'rod,' or *nindan*, seems to have been used as the base horizontal length unit; hence, used as basis for area calculations, while cubit for vertical, even though they were theoretically inter-calculable (12 cubits to 1 nindan) (Friberg 1984).

**New modalities: the emergence of weight metrology in West Asia**

*“He who commits fraud as he holds the balances,  
Who switches weights, who lowers the [?],  
His profits are illusory, and he loses the capital.”*

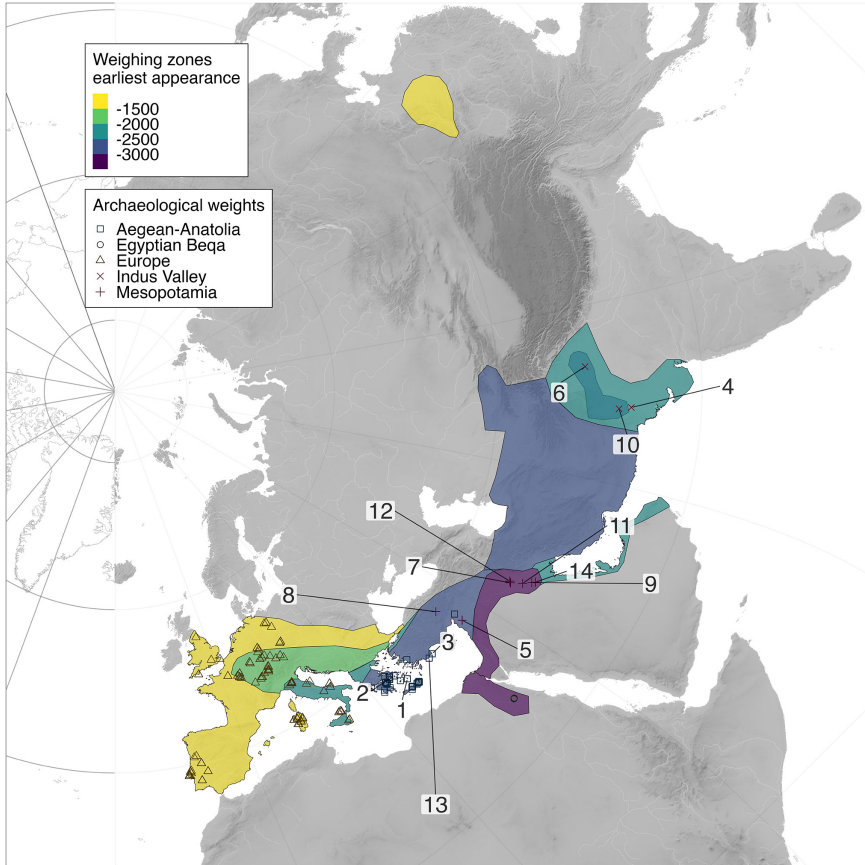
(Hymn to Shamash, sun god and judge of gods and men, composition in the 2nd millennium BC.)

(Foster 1996: 535–536)

Unequivocal evidence for the world’s first balance weights appears in Egypt and Mesopotamia during the early 3rd millennium BC (Mollat 2007; Rahmstorf 2014). Identifiable weights consisted of small, stone objects cut to regular shapes that shared the same mass, scale plates to support both the weight and the material to be weighed, and a balance arm that could indicate equivalence. At this time of technological innovation, there were many large cities in Mesopotamia, but there is little direct evidence of distinct ruling classes. In Egypt, stratified citadel elites may have been present in Upper Egypt, although probably not in the little known but probably higher density settlements of Lower Egypt. The social context in which balance weighing first developed appears, on current evidence, to be one with high levels of economic metrology, but little direct association with hierarchical control. Nonetheless, a lack of chronological resolution and good early contexts means that the exact details, origins and trajectory of spread are still difficult to trace.

During the later 3rd millennium, the practice of weighing can be documented widely from the Indus to the Aegean, before also becoming common in western and central Europe from the 2nd millennium onwards (Ialongo et al. 2018) and in China, probably, during the 1st millennium BC (Qiu 2005). This process is summarized in Figure 4.2. Curiously, balance weights seem to have been spatially constrained until very recently in human history; there are many areas of Eurasia where weights were not used until the 1st millennium AD—or where evidence has simply not yet been identified for specific periods. Perhaps the most surprising of these lacunae is that of central and eastern Iran during the Bronze Age, where, despite close proximity to economies using weight systems in both Mesopotamia and the Indus and clear evidence for trade within and across all three regions, local evidence for weighing is absent.

As noted, the chronological and spatial resolution of the data is too coarse to identify a specific place or time of origin for balance weighing. However, the most likely scenario is that the practice emerged to facilitate the production and exchange of metals. For example, stones that look like weights but cannot yet be confirmed as belonging to a formal system were found in 4th millennium burials from the Naqada cemeteries (Petrie 1926: 17–19). In subsequent dynastic periods, Egyptians knew this place as Nubt—a name meaning gold—apparently because it was an entrepot for gold miners to bring their finds from desert sources. Moreover, the vocabulary for weighing units in Mesopotamian texts of the first half of the 3rd



*Figure 4.2* Map of the distribution of balance weights during Bronze Age (data from Ialongo et al. 2021). 1 = Akrotiri, 2 = Ayia Irini, 3 = Cape Gelydonia, 4 = Chanhu-Daro, 5 = Ebla, 6 = Harappa, 7 = Ishchali, 8 = Kültepe-Kanesh, 9 = Larsa, 10 = Mohenjodaro, 11 = Nippur, 12 = Tell Asmar, 13 = Uluburun, 14 = Ur

millennium implies an exclusive association with metals (Bartash 2019: 187–247). As with food cooking, the emphasis of metallurgists may have previously been on ratios of different ores rather than absolute units. But, in the late-4th- or early-3rd-millennium Egypt and Mesopotamia, a small but radical step was taken to substitute direct ratios—where one material is counted or else compared directly with another on balance scales—with the intermediate medium of stone objects representing a system of discrete mass units, organized into modules—i.e. the mass of large stone weights being rounded multiples of the mass of the smallest. Once again, such metrological practices seem to have initially served specialist labor requirements.

A critical fact to bear in mind is that, for both Egypt and Mesopotamia, metals were sourced from outside the core lowland interfluvial plains of the Tigris, the



Euphrates and the Nile. Ore sources lay either in the distant highlands of Anatolia, Iran, the Caucasus, the Eastern Desert, Wadi Fayana and highland Nubia. In the 3rd and 2nd millennia, sources in the deserts of Oman and increasingly far-flung sources across the Mediterranean and Central Asia also became accessible. In brief, obtaining and distributing metals was unequivocally an international activity (Roberts et al. 2009; Stech and Pigott 1986). Indeed, Mesopotamia was not a single political entity; it was fragmented into many city-states whose international—perhaps better called *inter-polity*—relations were as much with the cities next-door as with the communities living around distance metal sources (Postgate 1994; Yoffee 1995; Yoffee and Seri 2019). Similarly, 3rd-millennium Egypt was less politically unified than the propaganda of early pharaonic citadel societies would have us believe (Bussmann 2010; Stevenson 2016). Even with the later political consolidations under the Akkadian and Ur III dynasties in Mesopotamia, directly enforceable sovereignty remained spatially restricted (Garfinkle 2013). The same may be true for Old Kingdom Egypt.

Despite political fragmentation, recent studies of the mass of the early Mesopotamian balance weights show a remarkable degree of uniformity within reasonable error bounds before any political consolidation occurred. Moreover, new unit systems that were subsequently used in Anatolia, the Aegean and Europe seem to have been derived from Mesopotamian models, with the small difference possible to attribute either to randomized drift when copying weights (Ialongo et al. 2021) or to a slight upward preference to adjust for price differentials between regions (cf. Kula 1986). Such international standardization, in the absence of a polity capable of enforcing it, implies we should look beyond governments as the agents of metrological uniformity at this time. The Indus civilization's weight system is interesting for its divergence from this widespread standard. Its weight ranges lie beyond what would be expected for random-drift, suggesting either an independent invention (Ialongo et al. 2021) or a deliberate strategy among the Indus communities to differentiate themselves from Mesopotamian models. Internally, however, Indus weights also show strong harmonizing distribution in mass across different sites (Miller 2013), despite no evidence for a political union between them. We will return to the Indus toward the end of this chapter.

Unlike the circulation of debt represented by Neolithic tokens, value systems based on weights of metal are completely alienable and inherently universalizing. The strong implication is that weight metrology functioned to maintain common units across vast geographies without much in the way of direct management by central political authorities. The first unequivocal example of an expanding political entity attempting to impose unified, in this case, royal, standards in Mesopotamia dates to the Akkadian period (ca. 2100 BC). Yet, this event occurred long after the emergence of widely shared common weight units (Powell 1995) and also several centuries after the first textually or archaeologically documented monarchs. The chronology of weight metrology, thus, defies the default models applied within archaeology, which associate standardization with centralized political control

(Rice 1991). Ialongo and colleagues describe this system in terms of a harmonizing or self-regulating market:

[W]eight units were originated and customarily regulated by networks of merchants. Public institutions were also important agents in this process, but their role was limited to those regions and periods in which strong institutions actually existed. . . . [T]he formation of new units was determined neither by diffusion nor by imposition but only by the continuous negotiation of how much deviation the market could tolerate before the norm was violated. (Ialongo et al. 2021: 6)

In Chapter 5, we will further consider the relationship between public and private spheres, the rise of mercantile communities and the role of markets. For the moment, we want to, instead, focus on the consequences of this new form of metrology for the imagination of value, its relations to sovereignty and the scope for contributing to inequality. The lack of direct state control of metrological standards is supported by the fact that the majority of weighing stones from 3rd-millennium Syro-Mesopotamia have been found in apparently residential or domestic contexts (Bartash 2019: 165; Rahmstorf 2014: 432). Indeed, textual records of the 2nd millennium BC indicate the existence of alternative sets of weights that were used by market actors and state agents, respectively—much as Kula describes for feudal Europe. Chambon notes that, if someone were to buy metal in the market at Mari, ‘market stones’ were used to measure its weight. But if they brought this metal to the palace (as tribute), ‘palace stones’ were used to re-measure them (Bartash 2019: 112; Chambon 2011: 148). Logically, there would be no reason to specify which stones were used if the units were identical.

We are accustomed, today, to thinking of weight as a universal property of all objects, but as Kula reminds us, this is a relatively recent idea (Kula 1986: 43). In the Bronze Age, weighing remained restricted to only a few categories of goods—metals, precious stones, spices and fine textiles. In a review of the textual evidence for early Mesopotamian weight metrology and the history of individual unit lexicons, Bartash notes that weighing was initially only used to measure and denominate copper and silver, using *mina* (Akkadian: *manû*; around half a kilogram) and its subdivisions, with other goods priced in equivalent weights of these two metals. Later, from the Ur III period, weighing of flax, wool and textiles became common (Bartash 2019: 118). Finally, during the Akkadian metrological reforms, the larger talent (Akkadian: *biltu*), was devised to measure bulk goods (Bartash 2019: 187–247). What these weighed substances all had in common was the fact that they were generally traded *between* polities as part of ‘international’ economic systems. By contrast, grain and other agrarian products—which circulated almost entirely within ‘domestic’ economic networks—seem to have been measured volumetrically (Michailidou 2001: 2).

In Mesopotamia, the smallest unit of mass measure, ŠE (Sumerian) or *uṭṭatu* (Akkadian), thought to represent 1/180th of a shekel, means a single grain seed

(Bartash 2019; Powell 1971). Whether this unit name is a conventionalized notion of the smallest conceivable thing (given the impracticality of counting single grains) or a metaphorical link between two sources of value (metal and grain) is unclear—nonetheless, it was not used to measure actual grains. There may be good practical reasons why grain continued to be measured volumetrically in bushel-vessels rather than on scales. As Kula points out in his explanation of the trend for ever wider and flatter bushel vessels in feudal Europe (Kula 1986), large and deep vessels can hide poor-quality produce and/or admixtures with cheaper substitutes. However, while the practicalities of bulk measurement may be part of the story, we argue that the divergence of metrological practices for different materials had an additional politico-economic aspect. Weighing was for substances subject to inter-polity trade, whereas volumetry and enumeration were for substances subject to internal taxation and dispersal of rations. To put it into modern economic parlance, volume was used to quantify income, as salary or benefits. In fact, it is only when grain eventually starts to be traded in bulk in international contexts by the later 1st millennium BC across the Mediterranean—from Egypt to Rome—that we see the evidence for very large weights and weighing machines in port facilities (Hitzl 1996; van der Wilt 2015).

These two dimensions of metrology—weight and volume—may have been restricted to distinct professions (e.g. merchants, on the one hand, and tax farmers, on the other, although sometimes the same person may have fulfilled both economic roles). Because of the inter-polity nature of weighing and the things being measured, it would have been much harder for any authority to control weight-based value systems for political aims, regardless of whether they sought to consolidate wealth within elites or distribute wealth more widely. In a system dependent on commodity currencies like metal, political authorities are unable to monopolize the specification of value for the conversion or substitution of one material for another. Herein may lie one source of the long history of antagonism toward merchants, mercantilism and related practices of usury—seen in Aristotle (Meikle 1996), and in later times, a factor in the antisemitic pogroms of Europe wherein Jews were often forced into the role of mercantile outsiders (Becker and Pascali 2019; Karp 2011: 2011; Piketty 2020: 51–64).

### **Metallic money and its limitations on governance**

While the shift to metal as a supposedly objective unit of value may initially have been a side effect of the new metrological technologies, it was also a political strategy. On the one hand, it empowered mercantile networks, while, on the other, it placed limits on the power of sovereign institutions. In the 3rd millennium BC, metal placed upper limits on the power of nascent citadel elites, who had started to co-opt and impose control on urban communities that had previously exhibited more egalitarian forms of political and economic organization. By creating a regime in which the measure of value depended on an external, difficult-to-obtain commodity, early citadels could not arbitrarily set the terms of the currency, and therefore, found controlling labor far harder. We might compare this situation—where

putatively neutral economic choices are actually political—to the one described by James Scott (2009) regarding the economic cultural traits of diverse communities of highland Southeast Asia, which he terms Zomia, of the 2nd millennium AD. He characterizes these as deliberate, if unconscious, anarchic strategies of resistance to centralized political impositions from the lowlands (Scott 2009). Scott's Zomians used spatially remote settlements to evade outside control, while ancient merchant networks relied on the remoteness of sourced materials and distinctive metrological practices to remain spatially embedded both *within* and *between* sovereignties. Where Zomians emphasize social equality, merchants pursue equality in the value transferred during particular transactions, but not in the cumulative long-distance exchange. In both cases, we prefer to see resistance as being not so much an opposition to governance or the state *per se* but to the attempted monopolization of levers of collective powers by exclusive groups.

Inter-polity trade in precious goods such as metals coupled with a strong objective metrology presents complex paradoxes for sovereign power. Perhaps nowhere is this clearest than in the function of silver as currency across Mesopotamia and the eastern Mediterranean in the 3rd and 2nd millennia BC (Powell 1996). The values of goods and debts are recognizable in cuneiform texts by their pricing in weights of silver. As such, silver had come to be understood as a universally fungible currency. By the 2nd millennium BC, when weight metrology and metal value systems seem to have spread westward across the Mediterranean and into Europe, finds of standardized ingots or standard-weight objects become common. Well-known examples include the tin and copper ingots of the Uluburun shipwreck found near the southern coast of Turkey (Hauptmann et al. 2002; Pulak 2008)<sup>11</sup> or the caches of standardized cast bronze ax-heads retrieved from hoards in central Europe (Pare 2013).

On the face of it, this usage of silver in Bronze Age Mesopotamia (and potentially other metals elsewhere) represents the origins of bullion currency—something that would be impossible without the practice of weight metrology. Still, we should be cautious of assuming direct parallels between ancient and recent bullion ideologies. First, remember that there are important differences in the material properties of different metals that shape their role as a commodity currency. Gold is almost completely inert, whereas pure silver tarnishes. Cleaning silver results in the gradual loss of mass, making it potentially deflationary as a store of value (i.e. assets devalue over time). In the 1st millennium BC, Greek consumers appear to have preferred tarnished silver vessels, perhaps because removing the tarnish through polishing would slowly decrease the amount of silver (Vickers and Gill 1994). Put differently, if you want to store long-term value in a material form measured by weight, silver is a worse medium than gold. Bronze Age metallurgists or merchants were, doubtless, well aware of this fact and the selection of or convergence

11 Given their physical size (many of the copper ingots reached 24–30 kilograms), if these are monetary tokens and not just commodities that happen to have monetary value, they would have to represent rather large monetary transfers.

toward copper or silver, as opposed to gold, as a unit of account, cannot have been arbitrary. By effectively pegging exchanges to a deflationary substance like silver, merchants subtly encouraged continuous circulation and trade growth rather than hoarding.

Second, it is difficult to say exactly how often prices recorded in weights of silver entailed the changing hands of actual metal or whether such values were used mainly as virtual units of account (Dercksen 2021: 338). It is even possible that bullion only physically changed hands in inter-polity transactions, the rest of the time remaining deposited in temples or similar institutions—perhaps similar to how gold was transmitted in limited ways between modern central banks before the 1960s (Bytheway and Metzler 2017). There are indications that gold also served a special economic function in the early 2nd millennium Old Assyrian period, since merchants were forbidden from exchanging gold with non-Assyrians, and the substance was also dispersed to the merchants from the *bēt ālim*, or City Hall, along with lapis lazuli and iron, which, at this point in history, were rare and of high value (Dercksen 2004: 14, 81).

Third, though a cursory inspection of the literature suggests silver was, indeed, a universal currency, it is by no means clear that all things could be priced against silver. Taxes in kind, or tithes, appear to have been relatively common, as is the case for textiles in Anatolian city-states of the Old Assyrian (early 2nd millennium) period (Wilkinson 2018), and while the itinerant merchants of Kanesh were naturally well aware of the saleable value of textiles—that was their business, after all—their exact equivalent value in metal was probably less important than as generalized tribute to local Anatolian ruling authorities (Dercksen 2021: 351–352). More importantly, quantities of grain also seem to have been used as an alternative unit of account (Powell 1996). We should, perhaps, see grain as a parallel currency to silver, used purely in domestic, as opposed to international, exchanges. Such grain units may or may not have been backed by actual measures of real grain, but their metrological logic facilitated more direct control over the local or internal economy and the direction of labor for the local sovereign institutions than silver currency could ever do.

### **Commodity and fiat currencies: lessons from a historical metrology**

Money is the metrological technology where we see conflicting political interests play out most clearly as a tool to (attempt to) control the flow of both labor and goods. But different types of money have different material affordances, which, itself, leads to different political outcomes. Scholars of money usually differentiate two types (e.g. Desan 2014; Skidelsky 2018). The first is commodity money—in which the material object selected to act as money is perceived as having some high intrinsic value beyond its role as unit of account and medium of exchange, such as gold or precious textile cloths. The second is fiduciary, or fiat, money—which is often perceived as having no intrinsic value, such as paper banknotes, but whose status as medium of exchange and unit of account is ensured by some authority. In the 21st century, all nation-states make use of fiat currencies. Historically, however, both types of money were commonly used in different times and places.

If Neolithic tokens were used as a form of money, then they were clearly of the fiat type, used for the polity-specific governance of community labor or the redistribution of agrarian products. This is confirmed by Schmandt-Besserat's vital observation that the archaeological contexts in which Neolithic tokens have been found suggest absolutely no association to interregional trade. Exclusive circulation within a given polity is a general feature of fiat currencies, just as pounds sterling and Mexican pesos are not generally accepted beyond the territories of the polities that issue them. This contrasts dramatically with weight metrology, in which international trade seems to have been both the origin and main *raison d'être*. Both within and between Mesopotamian cities, specified weights of metal functioned as the unit of account and as a medium of exchange. Bullion is a form of commodity currency and exists due the particular material properties of metal. Specifically, metal can be melted down into a liquid, allowing infinite divisibility as well as multiplication—a uniquely fractionative and enumerative medium for expressing values.

Commodity currencies are usually said to have intrinsic value, but in the case of metals in West Asia during the 3rd millennium BC, their important cultural role came as much from their politically external location and sourcing. In various ways, metals constituted the most flexible of potential currency substances. When raw materials are modified by humans, they are given a particular cultural imprint. Generally, such changes are permanent, at least to some degree. For example, clay is a highly malleable substance that can be shaped into an infinite variety of forms. But, once it has been fired in a kiln, its ceramic form is forever fixed. Other substances, such as wood, stone or ivory are similarly limited. It is true that worked stone or wood objects can be re-carved; but this is necessarily a reductive process. By contrast, metals can be melted down and given a new form, without any substantial loss of the original substance, tarnishing notwithstanding. Metal can always be culturally reset, in other words. It is in this sense that metals can be seen as particularly international, since they can always be modified to suit local cultural requirements. A cult statue in Mesopotamia can be made into a cache of gold coins in the Mediterranean, which can become a torc in northern Europe, and so on. As a result, metals are highly amenable to long-distance circulation and exchange, thereby crossing sovereign boundaries. Until the empires of Persia, Greece and Rome created vast geographic sovereignties backed by military sanction, this extrinsic status may have been much more powerful than any particular political program of metric and currency unification.

Let us consider the paradox raised by the use of metals as a medium of value in Mesopotamia, given that the sources of these materials lay outside of direct political control. One would expect states—or, more precisely, their ruling elites—to want *direct* control over the production of such an economically important substance; and there are, in fact, plenty of textual and archaeological examples of rulers attempting to monopolize metal flows (e.g. Morris 1989). At the same time, colonial expansions are often justified in terms of securing control over mining activities in metal-rich regions (Algaze et al. 1989; Edens 1992; Stech and Pigott 1986). That said, an alternative strategy is sometimes seen where large imperial

states leverage their more mercantilist neighbors, such as was the case with the Phoenicians for the Neo-Assyrians; or Greeks for the Lydians. Presumably, this is because controlling the flow of metals at the point they enter a polity's boundaries (taxing the merchants), or confiscating them from less militarily organized neighbors (demanding periodic tribute) is often more cost-effective than formal territorial expansion.

But, if bullion posed problems for Mesopotamian and Egyptian citadel elites, why did they not simply try to ban the use of metal in economic transactions, and instead, issue some sort of fiat currency made of clay or some other 'worthless' substance? In fact, they often did try to do just that. For example, bullion was removed from circulation by fixing it into sacred or inalienable treasure objects like crowns, diadems or face-masks in the ancient world. The solidification of precious metals into holy relics during the Medieval period in Europe probably echoes the same economic instinct of hierarchical institutions. Interestingly, the treasures archaeologists have found in Mesopotamia—for example, at the Royal Cemetery at Ur—tend to be gold rather than silver. Again, it may also have been the case that Mesopotamian elites, like their Egyptian equivalents, preferred the inert qualities of gold for hoarding purposes. Indeed, the heightened role of gold as an inert yet difficult to control medium of value may help explain why Middle and New Kingdom pharaohs were more keen to lock away gold in their funeral hoards than, say, sacrifice dependent humans, a funerary tradition in many other documented hierarchical societies (e.g. Recht 2018). In any event, if bullion had long been established as the basis for international exchange networks, then the consequence of complete prohibition would have been, in effect, withdrawing from those same long-distance connections. That price would have been, in most cases, much too high, and so, from the perspective of citadel elites, bullion remained a necessary evil.

### **Alternative paradigms: the role of metrology and fiat monies in China, the Andes and the Indus**

While Mesopotamia, Egypt and, during the 2nd millennium BC, neighboring regions such as Anatolia, the Aegean and Italy, moved toward economies organized at least partly on bullion money and international exchange, in other parts of Eurasia, we see very different patterns of metrology and monetary development. The three regions we will now discuss, two in Eurasia and one in South America—naturally isolated from the innovations taking place in West Asia—are curious for their technological divergence on the adoption of weight metrology, despite these regions clearly having an early interest in metallurgy. The Indus developed an apparently independent system of weight metrology during the late 3rd millennium BC. In contrast, for China, no evidence of weight metrology has yet been documented earlier than the 1st millennium BC, despite evidence for a proliferating polities during this time, some discussed in Chapter 3. Similarly, in the Andes, weight metrology does not appear until the early 2nd millennium AD, long after the development of large settlements discussed in Chapter 2. In both these latter cases,

the absence of weight metrology initially appears anomalous in the context of long local traditions of metallurgy, which we might expect to have encouraged its development. But, on further reflection, such divergences suggest that approaching global economic history using a set of expectations derived from West Asia is more of a hindrance than a help.

First, we turn to East Asia, and more specifically, China. Roger Needham (1964) famously argued that pre-modern China did not develop large mercantile classes until very late in the 2nd millennium AD, and this inhibited the expansion of technological innovations, many of which were initially developed in China but not commercialized there. Without delving too deeply into the controversies of the Needham thesis, it is, nonetheless, striking that weight metrology—so deeply associated with merchants in western Eurasia—seems only to have emerged in China during the Warring States period (ca. 450–221 BC), some two millennia after Mesopotamia and Egypt (Qiu 2005; Vankeerberghen 2005). This is despite the presence of a well-developed tradition of East Asian metallurgy since at least the late 3rd or early 2nd millennium, apparently imported from the steppes but ultimately connected to metallurgical traditions from West Asia and Europe (Mei 2009; Meicun and Liu 2017).

It is so difficult to satisfactorily explain this difference, and we have already noted in Chapter 3, that the data that have emerged from China since 2010 make us reluctant to speculate too much at this stage. However, the general implications are clear: Bronze Age Chinese political economies were organized in radically different ways to their contemporaries to the west. The lack of value systems derived from independent bullion currency may have meant fewer distinctions between economic and political power; hence, no early formation of mercantile classes. Moreover, candidates for pre-coinage currency in China are few. Jade or particular jade objects, such as axes, dating to the 3rd and 2nd millennia BC have sometimes been proposed because of the materials' high value and long-distance sourcing, as in later periods of Chinese history (Rawson 2017). It is notable that Chinese numeral systems apparently established in the 2nd millennium BC and identified first on oracle bones used for royal divination (Chrisomalis 2009: 66–67) adopted a multiplicative decimal base. This hints that the easy division of goods into parts was not as important a function of early Chinese numeracy as the numerical systems of Mesopotamia, since base-10 offers a more limited number of divisible factors compared to bases-8, -12, -60, etc. Though abstract counting was clearly important (Lu and Aiken 2004), there is little direct evidence that early Chinese writing was in any way similar to the accountancy documents typical in Mesopotamia. Instead, sinologists tend to emphasize oracular concerns as dominant in early Chinese metrology, characterized as 'metrosophy' by Hans-Ulrich Vogel, based on literary evidence from the Han Dynasty and later (Vogel 1994).

The situation changed in the Iron Age (1st millennium BC), with merchants being recorded in Han period texts and occasionally depicted in later murals and ceramic sculptures (Yu 1967). As we shall see in other Iron Age societies, coinage appeared, initially stamped from copper. By the 16th century AD, during the Song Dynasty, hollow-centered bronze coins seem often to have been collected on strings and



weighed to calculate their value, suggesting similar ideas around metal bullion value were present in East Asia (Witthöft 2018). Nonetheless, there are clues that the domination of ideals of fiat-type currency and its ability to direct economies may have persisted down the centuries. Famously, the paper bank note (Pickering 1844)—apparently derived from textile-money (Wang 2013)—is traditionally said to have been first invented in China under the 7th-century AD Tang Dynasty, before later emulations were produced by central banks in Europe from the 18th century AD onwards, as debt-note substitutes for metal coinage (Desan 2014: 295–304).

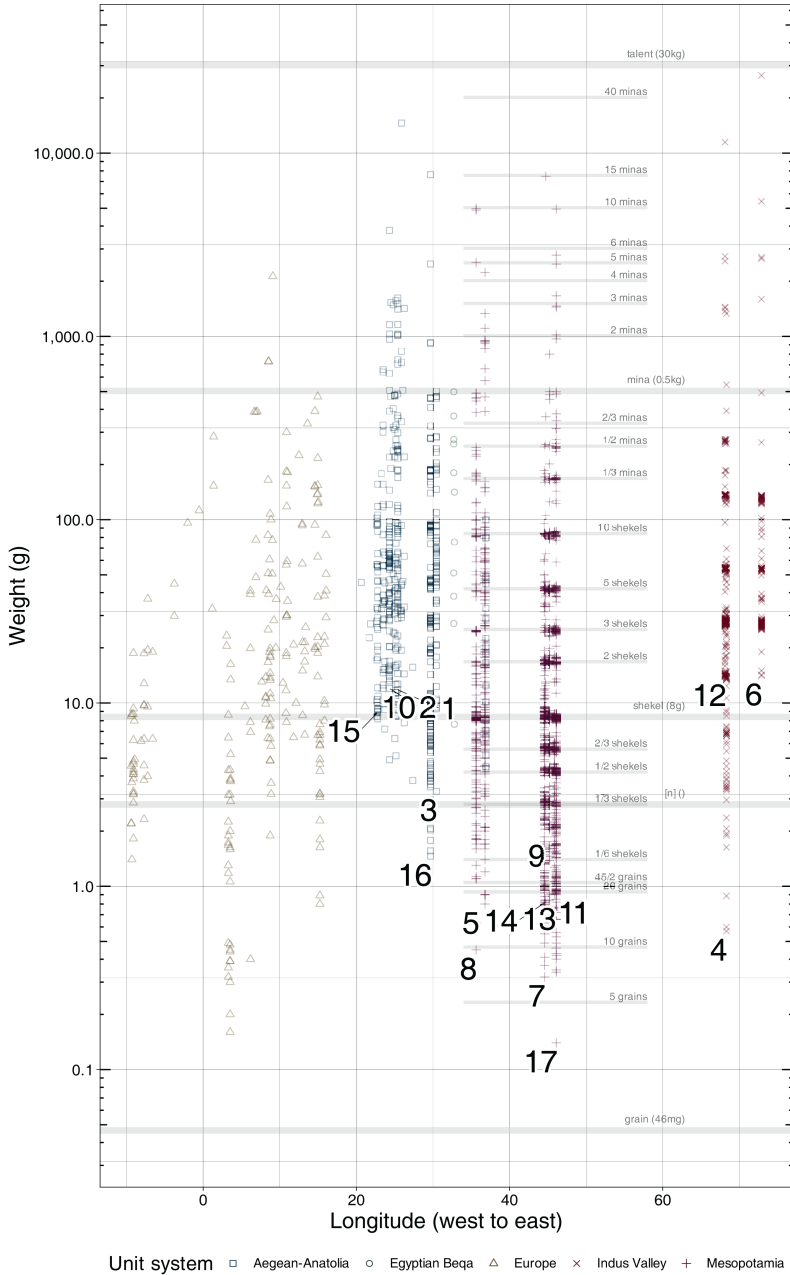
As a comparison, we note that, despite a well-established metallurgical tradition in the Andes from around 1500 BC (Lechtman 2014), there is no archaeological evidence of weighing balances until around AD 1100—and even then, they are almost entirely restricted to one region—the Chincha Valley—of the Pacific coast of what is now Peru (Sandweiss and Reid 2016: 318). Given the exceptionally arid conditions of the Andean coasts, this late and highly localized appearance of balances is likely not a result of poor preservation. Interestingly, those balances were not associated with any of the major pre-colonial Andean states or empires (e.g. Incas, Wari, Tiwanaku or Chimu) but with much smaller-scale polities. At the same time, the *quipu*—the Andean version of writing in the form of knotted threads—operated on a decimal system, implying a numeracy technology not devised for the purposes of trade. Unlike weighing balances, *quipu* are closely associated with large, centralized polities—mainly the Incas, and to a lesser extent, the Wari (Brokaw 2010: 72–123). Moreover, the Incas’ hostility toward mercantilism is a well-established idea within Andean archaeology and ethnohistory (Murra 1968; Salomon 2007).

By contrast, back in Eurasia, long-distance trade was central to South Asia from early on. Archaeological evidence for weight metrology in the Indus (between ca. 2600 and 1900 BC) appears in the form of standardized, usually cuboid, weights of chert stone, whose units mostly follow a binary base (at the smaller range, 1:2:4:8:16:32:64) with a decimal super base (for the large range, 160:200 . . . , 1600:3200) (Kenoyer 2010; Miller 2013). As legible texts are lacking, we are much less certain of how these weights functioned in Indus economies, compared to Mesopotamia, and, to a lesser extent, Egypt or even Prehistoric Europe. But we do have a few clues. The concentration of weights from just inside one of Harappa’s gateways, Mound ET (Miller 2013: 168) supports the importance of weighing on entry and/or exit from the city polity.<sup>12</sup> But what type of things were being weighed? Indus communities made widespread use of metals, including copper, bronze, silver and gold, documented by numerous knives, saws, spears, beads,

<sup>12</sup> Kenoyer (2010) assumes that this means that the weights primarily facilitated ‘taxation.’ This seems to reflect the old assumption that metrology cannot exist without a managing central authority. We see no reason to prioritize taxation of some unspecified authority over exchange between merchants or other types of groups. Both are possible, but taxation by weight is difficult to imagine without prior familiarity of using weights in exchange contexts.

rings, figurines, bangles, dishes, vessels and even scale pans (Hoffman and Miller 2009: 239; Marshall 1931: pl. 140). Like for Mesopotamia, the copper that dominates metallurgical assemblages was sourced from outside the core region of Indus settlements, probably from sources in Balochistan, Waziristan or Oman (Marshall 1931: 242–244). However, a possible alternative and, perhaps, more important class of objects to be weighed may have been stone beads, which were produced on a massive scale throughout the region (Kenoyer 1997b). Such beads are much more conveniently accounted using weight rather than tallies. Beads do not have the same liquid qualities as metals, and perhaps, the metaphorical understanding of value in the Indus was very different to the infinite fractionation possible within Mesopotamian bullion money systems. The absolute range of different weights is also wide, from less than 1 gram to over 10 kilograms, which must have implications for what was being weighed (for graphical comparison of statistical distribution between Indus, Mesopotamia systems, see Figure 4.3).

The fundamentally different base and division of Indus weight units from those of West Asia have led some to argue that they could have been developed independently, even if they could be inter-calculated where multiples in each system happened to converge around particular magnitudes (Ialongo et al. 2021). This independence is quite surprising when one considers the large volume of materials from both the Indus and Mesopotamia found along the Persian Gulf (Oman, Bahrein) and southern Iranian valleys, which has long supported the idea of intensive long-distance trade networks operating across this entire region (Edens 1992), termed the ‘Middle Asian Interaction Sphere’ by Gregory Possehl (2007). It has been argued, if not yet statistically demonstrated, that, unlike Mesopotamia and Egypt, where we see alternate systems used side-by-side in the same city and much regional variation, South Asian weights are considerably more uniform and standardized across the *entire* Indus cultural sphere (Miller 2013). If true, this hints at the existence of political and economic mechanisms markedly different from those used farther to the west, perhaps related to the apparent lack of any significant elite in Indus economies (Green 2021). In contrast to the funerary hoards of dynastic Egypt and Mesopotamian mortuary contexts where metal jewelry is also common, metal was very rarely placed in Indus burial contexts, and a large proportion of metal assemblages have, instead, been found under house floors (Hoffman and Miller 2009: 259–260; Rissman 1988). Although these are often described as hoards, their location in houses and the fact that “Indus sites of all sizes, and from every region, had relatively equal access to copper tools and ornaments” (Hoffman and Miller 2009: 259) suggests that the *status* and role of metal was very different to that of Southwest Asia or the Mediterranean. Indeed, Indus communities prized non-metallic artificial materials like etched carnelian, steatite and vitrified clay above all others (Miller 2008a; Vidale and Miller 2000; Wright 2010). Many of these crafts were part of a talc-faience industrial complex that emphasized the mass production of ornaments made from artificial materials (Miller 2008b)—more evidence of the craft polypoly we discussed in Chapter 2. Even if metal was measured for exchange purposes in Indus contexts, it seems unlikely that it had the same function as a universal account of value that we see for Mesopotamian silver bullion.



*Figure 4.3* Chart showing the statistical distribution of mass magnitudes for confirmed weights, Bronze Age unit ‘systems’ compared (data from Ialongo et al. 2021). 1 = Aghia Irini, 2 = Akrotiri, 3 = Ayia Irini, 4 = Cape Gelydonia, 5 = Castro de Pragança, 6 = Chanhudaro, 7 = Ebla, 8 = Etigny, 9 = Harappa, 10 = Ishchali, 11 = Khafajeh, 12 = Knossos, 13 = Kolonna, 14 = Kültepe-Kanesh, 15 = Larsa, 16 = Lipari, 17 = Migennes, 18 = Mochlos, 19 = Mohenjo-Daro, 20 = Nippur, 21 = Steinfurth, 22 = Tarsus, 23 = Tell Asmar, 24 = Thapsos, 25 = Tiryns, 26 = Tylissos, 27 = Uluburun, 28 = Ur

We would argue that the main purpose of metrology in the Indus was, like Neolithic tokens, to account for debts and mobilize labor, not to accumulate value in an external and difficult-to-control commodity such as metal bullion. Support for this argument comes from the distinctive use of seals and sealings in the Indus. As already discussed, sealings are usually understood to represent quality-control information technology symbols, providing information about the source or destination of sealed goods as signatures of agents in each stage of this distribution (Rothman 2007). In the Indus, high numbers of seals (the stamping device) relative to sealings (the sealed goods) has long puzzled archaeologists (e.g. Frenez 2018; Frenez and Tosi 2005). Clearly, a larger proportion of the population had signing roles than, say, contemporary Mesopotamia. Rajesh Rao (2018) explicitly treats the seals as specialist tools to create temporary labor tokens from clay or faience. He argues that many of the glyphs could be read as laboring categories; for example, the glyphs resembling a human carrying something represented a portage service. If correct, this would have huge implications as to the status of these objects as money, in similar ways to that we put forward for Neolithic tokens, albeit at a more complex level of verification. By using a stamp to create a portage token and pay out that token, an issuer was thereby directing labor toward very specific types of tasks, much in the same way that modern public spending in economies with fiat currency directs labor by creating money and then giving it to people to perform particular tasks. If we follow the logic of sovereign money production as argued by proponents of MMT, such tokens would only have value if their eventual return was mandated as a form of taxation; otherwise, there would be no reason to collect the tokens (Wray 2014).

Of course, as for the West Asian Neolithic examples, even if we accept this re-interpretation for Indus tokens, many questions remain. We do not know who the currency issuer actually would have been, nor how the production and taxation of such tokens would have functioned. Given the preponderance of numerous large house complexes with broadly similar structure and functions in which many seals are found (Franke-Vogt 1992, 1993; Green 2020), we can speculate that they were issued by “guild-like organizations” (Wright 2010: 327) to manage labor requirements and, simultaneously, to ensure the continuing authority of these groups through taxation. Unlike Neolithic tokens, where we must imagine a small network of circulation—both because Neolithic settlements were much smaller and because such simple shapes would have been easier to forge in large settlements—Indus tokens may have circulated much further, since the complexity of design and information on each would have made counterfeits much harder to make. Like modern money, they may have circulated informally in private exchanges before final redemption to the issuer. This particular fiat-based economic system apparently reproduced a largely egalitarian set of urban economies. But the seeds of destruction may have been built into the system; it is notable that metal tablets or plaques, with forms and glyphs very similar to the stone seals (Marshall 1931: 398–401), are found late in the Indus sequence but predominately at Mohenjo-daro (Fentress 1976). These may represent a slow merging of—or, at least, categorical confusion between—fiat and bullion types of currency, thereby facilitating the

rise of citadelized hierarchies in the late and post-Indus societies of South Asia (e.g. Thapar 1984).

A common factor across the Indus, China and the Andes are the metrological modes to measure economic values and transactions that follow a broadly fiat mode. All three regions document strong political projects associated with economic management, although each is distinctive, serving different local ideologies: centralizing power in ancient China and the late prehistoric Andes versus, if our interpretations are correct, more egalitarian power distributions in the Indus. Taking evidence from these regions together, it suggests the particular historical trajectory of West Asia should not be considered any kind of evolutionary norm for judging the development of metrology and money in other regions. Indeed, if we were to take the argument to the extreme, the fact that polity-issued fiat currency has predecessors in Neolithic societies around the world as well as the Indus, as we have argued earlier, rather suggests that the fiat currency model, so resilient in East Asia, is actually the default or even primordial form of money, rather than bullion or commodity form which is often appears at the beginning of standard accounts of the history of money.

### **Ideologies in the balance**

In this chapter, we have concentrated primarily on the significance of the emergence of weight metrology as money—but we expect there would be many other metrological stories for archaeologists to tell if more attention were paid to this neglected field. Archaeologists have long assumed that all metrology was a creature of the ruling classes, the kind of groups we referred to in Chapter 3 as citadel elites. In this chapter we have shown that diverse forms of metrological and numismatic technologies either pre-date citadel elites, as in the case of clay tokens in Neolithic West Asia, or developed just before or contemporaneously to citadel elites, as with weight metrology in Bronze Age Mesopotamia. We also discussed how weight metrology initially seems to have been associated with exchange networks that exceeded the political reach of the earliest states. Indeed, certain forms of metrological practice—in particular, weighing of metals and a value system built on bullion—may well have initially arisen during the early 3rd millennium as a means to counteract the totalizing tendency of citadel elite ideology, before being turned to other purposes. While some individuals could accumulate treasure in much larger quantities than others, the external source of the material vehicle for treasure always made that capital unstable, to some degree. Somewhat counter-intuitively, the same extra-sovereign nature of metal-based bullion currency also may have counteracted egalitarian ideologies, which had otherwise been dominant during the preceding Neolithic, when fiat currency systems—represented by clay tokens or, in later Bronze Age Indus, by sealings—allowed intensive labor regulation for egalitarian objectives. This re-interpretation of metrological technologies and their relation to currency implies that weight metrology provided some kind of middle point between opposing pressures toward inequality or equality, while simultaneously providing a single, shared line by which status could be measured.

Following the emergence of commodity currency based on weighed metals in the Bronze Age, stratification and inequality became more entrenched across Eurasia than in previous millennia. The exact reasons for this are not yet clear. However, an important potential factor is the degree to which a shared value system in which metals are recognized as currency over vast areas as a result of mercantile networks increases not just the hoardability of capital but also its mobility. Weight metrology may have been designed to place a check on elite power by the creation of sublime ‘objective’—external and or perhaps divine—value, but once the genie had escaped, other possible economic pathways were created. By the mid-1st millennium BC, rulers began to find ways to hijack the economic ideology of bullion currency through bimetal coinage—at once commodity in theory but fiat in practice. As we see in Chapter 6, coinage was one of the foundation technologies in the rise of oligarchy, based on the capture of rights to low maintenance relationships and goods like intellectual or real estate property, and a scalar increase in monopolistic rental opportunities, and hence, wealth inequality. At the same time, weight metrology, carried by merchants across Eurasia, provided a new, mobile and universal source for value that seemed to justify ever-growing inequality. It is to the agents of that new mobility, merchants, and their relationship with political structures to which we turn in Chapter 5.

## 5 Merchants

### Bronze Age millionaires and the rise of the affluent classes

The ancient merchant is often considered the ancestor of the modern entrepreneur; that often-enigmatic figure who (supposedly), at great personal risk, creates new technologies, methods or businesses in pursuit of private profit. While most evoke the comparison without explicitly using the word ‘entrepreneur,’ there is still a strong tendency to lean on commonsense archetypes of the intrepid businessperson—a figure much lionized within modern neoliberal ideology as society’s primary wealth-creators. The entrepreneur lurks beneath scholarly accounts of a range of figures, from the late 3rd millennium of Sumer down to the famous *tamkārūm* families of the Neo-Babylonian period. Recast as (at least part-time) private entrepreneurs, free from state control and driven by personal profit, the merchant is often construed as the embodiment of the free market in the ancient world (Hébert and Link 2009: 2; Hudson 2012).

In this chapter, we argue that, just as the modern ideal of the entrepreneur is a myth, so, too, is the idea that the ancient merchant absorbed all the risks of ancient trade. Of course, the two economic types—merchant and entrepreneur—should not be entirely divorced, but rather, a close analysis of ancient merchants’ activities reveals that they were simultaneously bound up with non-mercantile elites and institutions as well as other professional groups. Likewise, by examining ancient merchants through a heterodox economic lens, we can gain a better understanding of their role in past human economies. In particular, we find that ancient merchants wielded certain economic powers independently of citadel elites, but often, were partially reliant on income that could only be generated through collaborations with the same elite actors. From the other side of this relationship, the citadel elites depended on the connections and specialized knowledge of these men (and sometimes women) who were uniquely adept at moving across cultural and political borders. Merchants and their wealth drove societal change, but just as with today’s entrepreneurs, they could only do so through established political and legal frameworks.

In Bronze Age West Asia—and specifically, in Mesopotamia during the 3rd millennium BC—there is strong evidence for the emergence of new kinds of relationships between long-distance merchants and citadels. In many cases, these alliances seem to have allowed some merchants to accumulate unprecedented degrees of wealth and power. This chapter focuses mainly on those specialists who ran

some of the first known interpolity trade networks: the individual and institutional merchants (usually the same person) that managed the import and export of commodities and goods. The long-distance trade facilitated by merchants was crucial because all Bronze Age communities, whether citadelized cities or non-urban citadels, depended on materials that they had to acquire from outside their local environment.

A consequence of this burgeoning trade was the transformation of many of these merchants into the world's first 'millionaires'—individuals or groups possessing sufficient quantities of wealth to be able to invest in various business and property ventures as well as buy influence. This definition is, of course, not meant to be taken literally in that we believe such persons held at least a million in a particular currency. Rather, it signals that they occupied a new locus of power in their societies: becoming some of the first economic elites to build their fortunes from sources *other than* income tied to institutional offices or claims over agricultural production. They often took the form of patriarchal family firms who would buy property, sell property and acquire and dispose of debts as vehicles for expanding their own commercial investments. In the parlance of the 18th century AD anglophone world, they were successful enough to experience *affluence*, as opposed to the mere day-to-day scraping together of *competence*, itself a level of wealth unknown to most 18th century Westerners (Fichter 2010: 117–118). Their story, thus, helps us understand how trade contributed to the creation of inequalities at home and abroad.

### **The character of the merchant**

The economist Mariana Mazzucato (2018) has argued that economic activities have always been categorized as either productive or unproductive. Under some regimes, certain economic activities are considered positive and moral, while under others, the very same activities are deemed negative and immoral. For instance, from the ancient Greek world of the 4th century BC through the Middle Ages, certain professions were understood to be virtuous or vile based on whether they were seen as contributing to the common good—or conversely, weakening the normative bonds of society through laziness or greed (Mazzucato 2018: 22–23). Merchants, as a distinct profession or social class, have been particularly prone to inspiring a wide variety of reactions across this productive/unproductive dichotomy.

But before examining this problem, it is useful to ask: what exactly do we mean when we talk about merchants? In our view, this word has been used too loosely. To us, a merchant is: 1) a wholesaler of goods, who 2) has a personal stake in said goods and 3) must cross political and cultural boundaries in the transit of their wares. We use the term 'wholesaler' to emphasize that merchants should *not* be conflated with shopkeepers or vendors. A wholesaler that buys coffee beans from growers in a faraway setting, roasts them and distributes them to shops in distant markets is a merchant; however, your local coffee shop that actually prepares your espresso is simply a vendor. A merchant must also lay claim to, at least in part, the goods in which they traffic. For example, a long-haul trucker driving a shipment of clothing across the country is not a merchant because they are merely transporting



goods that are owned by someone else. It is important for us to be explicit in what we mean by merchant, since our usage of the term is not always identical with how it is deployed in other scholarly accounts. Confusion will arise if our discussion of merchants is not read with our specific definition in mind.

The most important thing merchants do is move goods across political boundaries. All kinds of goods circulate within polities, whether humble villages or large stratified kingdoms. In small-scale agricultural societies, grain and livestock often move via kin networks; for example, in order to seal marriage contracts. But a farmer who negotiates 20 head of cattle as bridewealth for his daughter's hand in marriage is not acting as a merchant. In kingdoms, taxes are levied on subject populations by rulers or via their local aristocratic representatives. But a tax collector is also not a merchant (although, as we shall see, merchants in some social contexts could also take on the role of tax collectors). Merchants do something quite different. They travel beyond the reach of local law and custom, establishing contacts in faraway places. It is the peculiar task of the merchant to organize the movement of goods between sovereign spaces, rather than within them. Human settlements are not closed systems; they change as a result of the inflow and outflow of things (raw materials, agricultural products, finished goods) and people (labor). As we saw in the previous chapter, these exchanges are often tied to processes of metrological commensuration, thereby allowing diverse goods to be categorized according to a shared understanding of quantitative value. A mercantile society must be able to assign value to the products that are exchanged. Especially at the international level, merchants are the key actors who created and maintained these flows of value in the ancient world. Although we will frequently talk about merchants engaging in 'long-distance' trade in this chapter, it is less the absolute amount of ground covered that matters than the political and cultural boundaries that are traversed.

We must also be sure that, when discussing long-distance merchants, we do not conflate the merchant with concepts like 'marketplace'—or worse—'market economy.' This does not mean that merchants had no connection to either markets or market economies in various periods and places, but that merchants and markets must be treated as separate phenomena. The former does not necessarily imply the latter. Karl Polanyi (1957) argued that Mesopotamia was market-less—both in the sense of lacking physical marketplaces and in the sense of lacking an economic system governed by market principles. This idea has been long debunked. Ancient cuneiform texts clearly mention markets. At several sites across ancient West Asia, places where merchants engaged in exchange have been identified (Otto 2019 and references therein). In the Old Assyrian sources, discussed more fully later, it is clear that merchants haggled over prices on a day-to-day basis and that price fluctuations could be linked to any number of local and larger regional circumstances. The situation is often more complex than a self-regulating market, or a system built upon the exchange and redistribution managed by institutions. Through a focus on the merchants themselves, rather than the amorphous systems or pre-supposed places they are assumed to have worked within (or not), we can better challenge the cult of the entrepreneur.

In neoevolutionary scholarship, it is typically suggested that ‘foreign’ trade appears during the transition from the chiefdoms to states (Flannery 1972a; Oka and Kusimba 2008: 348). Such models view merchants as evidence of a social system that has moved from ad-hoc trade with outside entities to fulfill ritual and social obligations to one in which trade became so continuous and large-scale that it could support entire bureaucracies. These state-run bureaucracies then evolved to partake not only in trade with different types of outsider polities but to engage in ad-hoc exploitative behavior, creating further inequalities within the wider interaction sphere. In his summation of this model, Flannery argues that Mesopotamian merchants emerged from “low-skilled emigrants” arriving from faltering outlying settlements (1972a: 134–135). In Flannery’s view, the emigrants became the takers over time, driving socio-political complexity in ancient West Asia. Adams argued, conversely, that socio-political complexity is not a precondition for trade but that trade, expressed through its merchant protagonists, creates great change in societal structures. In his words, “It is imperative that we consider the extent to which they [the merchants] are at once prey to powerful, uncontrollable forces and themselves the motive forces in rapid, innovative advance and adaptation” (Adams 1974: 149). Adams still links trade and its actors to the “promotion [of] the development of civilization,” but rather, seeks to analyze the creative or destabilizing forces generated by long-distance trade and cross-regional interaction within their own societal contexts (1974: 249).

Given that merchants are wholesalers who retain strong claims on the goods they move between sovereignties, we must recognize that not every society has actually had merchants. It is not even self-evident that all urban, literate societies had a merchant class. The mere presence of exotic imports is not in itself proof of merchant activity. Archaeology has often struggled to separate long-distance trade from more amorphous processes of ‘diffusion,’ let alone identify the particular social agencies involved (Adams 1974: 240–241). And too often, materials and objects traveling great distances have become *de facto* proxies for merchants and trade in the archaeological imagination. For example, in West Asia, materials were exchanged between peoples of different geographic areas long before we have unequivocal evidence for merchants (Badalyan et al. 2004; Cauvin et al. 1998; Laursen and Steinkeller 2017: 8–14; Torrence 1986). Obsidian originating in central and southeastern Anatolia and the Caucasus flowed throughout West Asia during the Neolithic period. Later, many exotic materials have been discovered at sites occupied between the Ubaid period and Uruk period during the 5th and 4th millennia BC in Mesopotamia; while Mesopotamian pottery (or at least pottery styles) have been found across the Persian Gulf region (Potts 1986; Wilkinson 2014). We lack texts from these periods, so we cannot be sure who was responsible for the distribution of these materials. It is entirely possible that merchants were active, but without clear evidence, we should be circumspect about claims that they were responsible for the large-scale social transformations—including the Uruk Expansion, as has been claimed by a number of archaeologists (e.g. Algaze 2001; Rothman 2013; Schwartz and Hollander 2016). In later periods, when direct textual references to

merchants begin to appear, the material results of their acquisitions are more pronounced: lapis lazuli for the temple, timber for the palace, diorite for royal statuary (Garfinkle 2010a, 2012: 25).

Of course, long-distance exchange was sometimes conducted by other kinds of highly mobile groups. Bronze Age pastoralists, as an example, facilitated much of the exchange that shaped trade routes and patterns of production and consumption on the Eurasian Steppe. Such exchange drove ideological and social transformations across this vast region within which the types of institutions normally associated with the regulation of such interactions were entirely absent—a situation that has been described as a “nonuniform institutional complexity” (Frachetti 2012: 2). The customs and traditions that control the mechanisms of exchange amongst such pastoralist groups are in themselves institutions in that they retain authority across time and space. Yet, not all institutions are palaces, nor are all treaties and laws of exchange reified in clay and stone.

It only becomes evident that a merchant community generated and maintained long-distance exchanges in later cuneiform sources. These written attestations sometimes occur alongside other forms of relevant evidence (e.g. different standards of weights, hybrid iconographic styles, imported goods). While integral to the merchant’s business, “weights do not equal merchants any more than pots equal people” and so markers such as weights or imports must always be interpreted as part of a broader merchants’ toolkit (Hafford 2001: 88). In the famous case of the Old Assyrian merchant communities (Akkadian: *kārum*s), the presence of foreign merchants was only initially discerned through their archives. This issue is compounded by the fact that foreign merchants do not always live in neatly designated neighborhoods but can, instead, be fully integrated into their host cities (again as is the case with the Old Assyrian community at Kültepe-Kanesh) (Hertel 2014; Highcock 2018; Yazıcıoğlu-Santamaria 2015).

Western scholarship on merchants is strongly influenced by Plato’s ancient typology, which, as we will see later, classed merchants as producers who made a living through import and export activities. What merchants actually did in Bronze Age West Asia was, however, varied and complex. This all-encompassing view of the merchant as analogous with retailers or more generalized businesspeople is largely a product of the sources themselves. The ancient Mesopotamian words *dam-gār* (Sumerian) or *tamkārum* (Akkadian) are most often translated simply as ‘merchant,’ but the simplicity of this translation belies the diverse range of activities that comprised the merchant’s professional life as evidenced in the ancient sources.<sup>1</sup> In contrast with Plato’s neatly defined sub-categories of the retail merchant and the long-distance trader (see later), the emic terms for the Bronze Age Mesopotamian merchant covers business both near and far and of many different varieties—often, carried out by the same individual. In its maximalist

1 Per one standard Assyriological convention, Sumerian is transliterated as lowercase letters separated by hyphens and Akkadian is rendered in italics.

conceptualization, merchants are people who ‘do business,’ engaging in the buying and selling of things in order to turn a profit either for themselves or someone else (Monroe 2009: 281–282 citing Powell 1977: 24). Figures that we know to have facilitated or carried out long-distance trade, the focus of this analysis, could go by other professional designations or descriptions (see Old Babylonian period later). In general, however, the term ‘merchant,’ in its definition as a wholesaler and/or trader who often deals with foreign goods and contacts, most closely adheres to broader range of economic activities associated with the Mesopotamian *dam-gar/tamkārūm*, as opposed to those of a retailer or the amorphous ‘businessman’.

The origin of modern discussions centering on the character of the professional merchant, the morality of profit-seeking and the transformative social agency of mercantilism can be found in the classical sources. In Graeber’s framing of the Axial Age (800 BC–AD 600), the interrelationships between a range of phenomena—debt, violent conquest, slavery, markets and coinage—created an environment ripe for the emergence of major new philosophical and religious movements across the globe (Graeber 2011: 249–250). An acute interest in the utility and morality of merchants was a feature of these intellectual movements, often with highly divergent views, depending on the source. Such tensions are clear, for instance, in comparing the characterization of the merchant in Plato’s *Republic* and Cicero’s *De Re Publica*. In Plato’s *Republic*, Socrates constructs his model city, not through fully idealized or abstract institutions and principals but in terms of very human-centered classes and professions, which reflect the social relationships that maintained a ‘real-world’ *polis* (Morrison 2007: 235). It is through this focus on the productive and unproductive activities describing different professions that particular groups, like merchants, are defined and that their relationship to the other political authorities, in the context of the *polis*, becomes clear.

Merchants were an integral component of the Platonic city’s economic productivity and are described not as the retail traders (*καπήλοισι*) selling wares in the marketplace, but rather, the ‘importers and exporters’ (*ἔμποροι*). In a dialogue between Socrates and his brother Adeimantus, retail traders are designated as the middlemen working within the city itself, whilst merchants are those who venture beyond the city’s walls to secure their fortunes; they are capable of operating both within and beyond the physical boundaries of the state. In Plato’s view, the stuff produced by artisans and farmers requires a third class of professionals—the merchant—to move and activate it. Artisans and farmers do not have the time nor space to sell their own products, and it is the retailers and merchants who turn these inert materials and objects into functional wares.

This want, then, creates a class of retail-traders (*καπήλων*) in our State. Is not retailer (*καπήλους*) the term which is applied to those who sit in the marketplace engaged in buying and selling, while those who wander from one city to another are called merchants (*ἐμπόρους*)?

(Book II, 371d)

In the Platonic ideal city, therefore, merchants were specialists who imported and exported commodities and goods; they were not the middlemen of the marketplace, here designated as weak and unskilled, but those that expanded the city through their productive activities. In the preceding passage, Socrates notes that a city without imports cannot exist and that the merchants—those that bring supplies from other cities—are the mechanism that encourages a city to change (Book II, 371a-c). It is the international trade and its managers that spur transformations within the city-state in this particular conception of urban societies—an argument that is not unlike those made by later archaeologists and historians.

Weinstein has noted that these passages divide the citizenry into two distinct groups through the transition from a “communal city of crafts to that of the market” (2009: 447): the artisans, builders and agro-pastoralists are the creators (δημιουργοί), and the retail traders and merchants are the service providers (διακόνοι). Whereas the first group is treated as an amalgamated whole with farmers and craftsmen, the service providers are further categorized through distinguishing terminology (καπήλοι and ἔμποροι) (2009: 447). Unlike in Plato’s other works, however, the merchant is not disparaged as either a service provider or profit seeker but is, instead, deemed necessary to building a self-sufficient state. Weinstein views this shift in Plato’s rhetoric as acknowledgment that the long-distance merchant is not merely retrieving the goods and materials that a state may lack, but rather, has the ability to gather and control knowledge—it is only this figure that can know what other cities have and what may be needed in the future (2009: 449). Compare this characterization with that of Cicero’s *De Re Publica*, written between 54 and 51 BC, in which long-distance trade is demonized as a degenerative force within trade-oriented cities:

Maritime cities also suffer a certain corruption and degeneration of morals; for they receive a mixture of strange languages and customs, and import foreign ways as well as foreign merchandise, so that none of their ancestral institutions can possibly remain unchanged. Even their inhabitants do not cling to their dwelling places, but are constantly being tempted far from home by soaring hopes and dreams, and even when their bodies stay at home, their thoughts nevertheless fare abroad and go wandering.

(Book 2, IV. 7)

That long-distance merchants have often been cast as strangers, and thus, untrustworthy is well-established (Hirth 2020: 207 citing Simmel 1996). The merchant’s dual role as both local and stranger resulted in what Hirth has termed the ‘merchant’s dilemma.’ Merchants are often expected to invest their wealth in their home communities, while also adhering to local prices and moral codes, despite the fact that their activities exploit differentials in value systems across space (Hirth 2020: 209–211). The merchant’s dilemma, which they face as importers/exporters and as figures who work both within and beyond the state, certainly included the long-distance Bronze Age merchants of ancient Mesopotamia. The networks they created or reinforced require knowledge and contact with outsiders and the ability to move across

otherwise entrenched political and cultural borders, which, perhaps, explains why they inhabited a rather ambiguous moral position in the Mesopotamian world as well. As the Sumerian proverb, “The scales are the net on the opening of a pit-trap; No one has a merchant for a friend” (Civil 1976: 74) indicates, they could be viewed as profit-seekers not to be trusted by their fellow community members. On the other hand, they were highly integrated members of 3rd and 2nd millennium city-states, carrying out all manner of activities and moving in elite social spheres. That their superior knowledge of the outside world afforded them particular influence in their urban settings is even remarked upon in the Sumerian tale of Gilgamesh and Huwawa, where the astral manifestations of the Seven Demons (*sebettu*) are compared to merchants in their knowledge of the landscape: “On earth, they know the road to Aratta. Like merchants, they know how to traverse the path” (Edzard 1993: 21; 47–48’).

What of the relationships between merchants and mercantilism? Mercantilism is generally associated with the early modern era (16th–18th centuries AD) and was first defined and theorized by Adam Smith in his *Wealth of Nations* (1776). At its core, mercantilism empowers local merchants to use customs, charters and other political implements to limit imports and encourage exports, while bringing a surplus of precious metal (gold and silver money) into the country. Smith’s main objection to mercantilism, represented in his day by the East India Company, were that it grew the wealth of the sovereign and the merchant class but curtailed domestic manufacture and production and that mercantilists thus confused an increase in the quantity of gold and silver within a country with an overall increase in its wealth (2007: 94–95; Hanley and Paganelli 2014; Perrotta 2014). Smith was responding to figures such as Thomas Mun (1571–1641)—a long-distance merchant and eventual director of the East India Company whose posthumously published work, *English Treasure by Forraign Trade* (1664), served as a manual and state-of-play on foreign trade in the 17th century. It has, however, been argued that merchants such as Mun were vitally aware of the potential conflicts between the sovereign, the merchant class and the general public—and that Mun’s work was, in fact, arguing that the import of raw materials and foodstuffs actually spurred local production, overall employment and economic growth (Perrotta 2014: 97–98). In this view, Smith’s argument that a central and tightly controlled (through protectionist laws) mercantile system was implemented solely for the benefit of the sovereign and merchant elites is at odds with the nation-building project purported by Thomas Mun. The tension between these two systems—Smith’s industrial capitalism versus Mun’s mercantilism—lies once again in the complex nature of the relationship between sovereigns and merchants.

The role of the merchant class in the shaping of a city or city-state’s economic fortunes and social dynamics is, therefore, both an ancient and modern concern. Whether cast as greedy, adventure-seeking profiteer, indebting his fellow citizens through interest-bearing loans, an enabler of the institutional elite or the lifeblood of a functional and well-connected city, the ancient perceptions of merchants are fluid and difficult to categorize. This is, perhaps, why modern analyses of ancient merchants have tied these figures to a more modern, although similarly amorphous (as well as lauded and reviled) category of economic agent: the entrepreneur.

### **Entrepreneurs and the entrepreneurial state**

In *The Entrepreneurial State*, Mazzucato argues that entrepreneurship is deeply misunderstood in contemporary economics (2013: 64). One need only look at how the term is bandied about in the media and by those involved in all types of business ventures at all scales, from Fair Trade craft producers to Jeff Bezos, to understand how this term can be used to describe people involved in a broad range of activities that could be classified as either value creators or value extractors. Mazzucato defines value creation as the portion of this flow in which resources are generated and set to interact in ways that create new types of products or services (labor). Value extraction can only occur once already firmly embedded resources and their resultant outputs are moved around to grow the wealth of those that do the moving (Mazzucato 2018: 7).

Given Mazzucato's insight, what, then, is the best way to conceive of the ancient merchant? Rather than ask 'is the merchant a maker or taker,' it is necessary to pose a series of interrelated questions that get to the heart of how merchants shaped ancient economies. Trade in itself is a neutral economic force with respect to inequality: the movement of goods across space, facilitated by merchants, does not necessitate the redistribution of those goods in unequal ways. However, as ideologies of value become attached to certain resources and goods—treasured items like metals or spices, for instance—it is the merchants who enable certain people, including themselves, to amass more of these things. Such ideologies of value need not arise in elite institutions, but once they are attached to elites (or coopted by them), it is the merchants who enable their continued promotion through their specialized knowledge, skills, mobility and networks.

Entrepreneurship has two defining components: innovation and risk. An entrepreneur must make the economic arrangements necessary to transform a new idea or invention into a product or process or create an entirely new market for an existing product. A true innovation requires destruction of its predecessors. This is seen in the advent of online streaming services, which have made the weekend trip to the video store obsolete in many parts of the world, or in the invention of the internal combustion engine, which put an end to the stagecoach (Mazzucato 2013: 49 citing Schumpeter 1989). Risk is the other major component to entrepreneurship. One must be willing to risk resources in order to dedicate time and effort to transforming a new idea into a profitable product. The degree of this risk is crucial to understanding the high costs of this investment. True entrepreneurship, therefore, occurs when the outcomes of a particular endeavor are inherently uncertain: the entrepreneur cannot fathom the end result as the task has never been done before (Drucker 1970; Mazzucato 2013 citing Keynes 1937; Knight 1921).

What can we make of the millionaire merchant, characterized as the change-makers by ancient and modern thinkers, enmeshed in high-level politics and crucial to economic growth whilst acting as purely profit-seeking free-agents? As mentioned, the relationship between the merchant and the state has long formed the backbone of much scholarship centered on merchants in ancient West Asia. Debates on the topic have often concerned the degree to which trade networks

are embedded in long-standing political and social structures—or, more succinctly, whether long-distance exchange can operate independently from the fortunes of the state. The simple answer, further elaborated later, must clearly be ‘yes.’ The emergence of a fully-fledged professional merchant class is difficult to pin down in prehistoric contexts, but the texts of the 3rd millennium BC clearly document such a social category. The texts point to figures engaged in trade; as we have argued, merchants can only exist when there are political borders to cross and an ‘international’ set of rules and standards are created to regulate this trade and facilitate understanding between separate but compatible merchant groups—a community of practice dispersed over space (Hirth 2020: 197). Furthermore, their ambiguous position as being both prey to—and creators of—uncontrollable forces is tied to scholarly characterizations of Bronze Age merchants as either state-sponsored officials filling the coffers of the temples and palaces or as ‘free’ entrepreneurs empowered to create and grow their own wealth apart from or in addition to their service to the state (Adams 1974; Garfinkle 2012; Hirth 2020; Monroe 2009; Oka and Kusimba 2008: 359).

It is the latter view that has generally been emphasized by scholars. The ancient merchant has, thus, become closely tied to the modern figure of the entrepreneur (Hudson 2012: 9). The analogy has been applied to a diverse range of more or less well-known figures spanning the from the late 3rd millennium down to the famous *tamkārūm* families of the Neo-Babylonian period. Like merchants, entrepreneurs are mythologized as both inside and outside established economic structures. They are meant to provide ‘start-up’ investment or manage resources, spark the discovery of new technologies or find ways to exploit or allocate already known resources. The entrepreneur’s role as the financiers of trade and industry has often led to a conflation of the terms ‘entrepreneur’ and ‘capitalist’ in modern economies, obscuring the historical development of entrepreneurship and the ways in which entrepreneurs are perceived within wider society (Hébert and Link 2009: xvii, 6). In the previous chapter, we discussed how non-institutional elites such as merchants created metrological systems to fill a clear need for commensurate value systems across polities. Merchants were adept at exploiting gaps in previously established processes or resources in order to make a profit. In the case of long-distance trade, the economic arrangements in place may have always been merchant-led; but it was in the Bronze Age cities of Mesopotamia that long-distance trade networks were co-opted and exploited by the citadels. Merchants also acted as agents of the ‘state’ to procure foreign goods, but the merchant-led operations were never abandoned or subsumed. There was constant interaction between institutional elites and merchants, who acted either independently or as part of larger firms or collectives so that the ‘public’ is always supporting the ‘private’ and vice versa.

Much of the study on the role of merchants in ancient societies has been tied to these larger conversations around the public versus private aspects of ancient economies as well as long-standing debates concerning the general differences between ancient and modern economic systems. Cast as both state-attached specialists in procuring goods and resources for temples and palaces and as independent operators able to grow their own wealth through private enterprise (Garfinkle 2012:



Chapter 3; Lamberg-Karlovsky 2009: 58), ancient merchants have often found themselves at the center of the push and pull between primitivist and modernist economic historians.

Characterizing merchants as entrepreneurs has highlighted the complexities of the merchant's diverse range of activities as seen in the data (Garfinkle 2010b, 2012, 2013). However, others have viewed this drive as an unwarranted mapping of the modern onto the ancient, born from an overcorrection of earlier models developed by economic historians such as Diakonoff, Polanyi and Finley, which exaggerated the differences between the two. The need to locate market forces involving credit, investment, banking and entrepreneurship in ancient economic systems has been criticized as universalizing and lacking in evidence (see overview in Baron and Millhauser 2021); at the same time, others have dedicated much of their work to highlighting what they see as concrete evidence that these forces did exist in certain places and periods (Larsen 1976, 2015; Veenhof 1997, 2003; Garfinkle 2005, 2012, 2013; Hudson 2012; Wunsch 2012).

Lamberg-Karlovsky (2009) argued that the rising interest in private enterprise also stemmed directly from current concerns:

Our own contemporary aversion to state control of an economy, our belief that free enterprise is a panacea for all social ills, or a contrasting view of communal ownership in a society of shared social fields, are but a few ideological impulses with which we burden the past.

(Lamberg-Karlovsky 2009: 82, see also 74)

For Lamberg-Karlovsky, the various actors involved, such as merchants or the state, and their motivations in ancient Mesopotamia may bear some resemblance to their modern counterparts, but the ways in which profits and value manifested were not only different from today but ranged widely across time and space in their own era (2009: 82). All people must seek resources for productive activities, but the ways in which the wealth produced by those production activities is distributed must reflect the cultural pressures that act upon individual agents. In this regard, few scholars would disagree, and those that have undertaken the work to identify entrepreneurial activities have usually argued that past economies were integrated, and private and public concerns coexisted in a flexible patchwork. If we leave aside any underlying desire to find the contemporary in the ancient past and, instead, focus on the evidence itself, one could argue that the very idea of the distinction between public and private sectors is a modern invention with no foundation in the ancient sources. This is especially true for the Mesopotamian case, where throwing out the entire public-versus-private paradigm, either as oppositional forces or uneasy allies, is not only a methodological way forward but a *necessity* as demonstrated by the texts themselves.

Oka and Kusimba have argued that trade occupies an “uneasy” position within wider archaeological thinking (2008: 342). Although their review is also concerned with the broader umbrella of trade, not merchants specifically, their discussion demonstrates the challenges archaeologists face when they seek to embed trade

and its agents within larger social phenomena. Scholarship of the mid-20th century, grounded in the substantivist view of Polanyi, connected long-distance trade with the legitimation of political elites at multiple scales. So when traders/merchants are discussed, they are assumed to have been agents of the state who both secured foreign resources and cemented social relationships with other elites on behalf of those in charge of their home polity (2008: 344). Such models drew firm boundaries between the mechanisms that drove ancient and modern economies, the latter of which were seen as profit-seeking and able to operate beyond the elite consumption of luxury items. This boundary was dissolved by work in the 1970s, which emphasized the role of long-distance merchants in ancient economies and their operating networks, and presented them as a counterbalance to the unbridled power of the ruling class. No longer were merchants and their activities relegated to procuring luxury goods for the privileged few or securing agricultural commodities meant for redistribution; merchants of the ancient world were recast into the private sector—or, in other words, trade that was neither funded by nor fed back into the institutions of the ruling elites.

By highlighting the human actors involved in trade, archaeological scholarship has swung the pendulum in the other direction (Lamberg-Karlovsky 2009; Adams 1975; Oka and Kusimba 2008; Hirth and Pillsbury 2013). No longer agents of the citadel, archaeologists began to refer, instead, to the entrepreneurial spirit of ancient merchants. The marriage of an agency approach to emerging archaeological data and a re-analysis of ethnographic research shifted the focus away from trading *systems* to trading *communities*. An emphasis on community repositions trade in its most basic processes: the procurement and dividing of resources across populations of different scales and socio-political configurations, sometimes at great distance. It was through such an analysis of the merchant community that one could trace universal patterns in the ways these men and women conducted business and a universalizing model of merchants was formed (Oka and Kusimba 2008). This community-based model of trade offered a more ground-up approach. In particular, it moved discussions of ancient trade away from neoevolutionary models and toward a more nuanced analysis of how merchants' activities can be analyzed as both socially and politically embedded, while also decoupled from larger institutional networks. Merchants could engage in trade with their fellow merchants for profit's sake, regardless of who was in charge. This reinterpretation has led to a new view of trade networks as "among the most resilient of human activities," continuing to grow and gain profit in both favorable and highly unstable conditions such as conflict and famine (Oka et al. 2009: 201). Merchant networks can, thus, operate as free radicals, connecting various states and polities, but also somehow decoupled from those very bodies. A merchant supposedly free from state-control has thus become an entrepreneur.

In ancient Bronze Age Mesopotamia, however, merchants were actually very risk averse. They often built finance through a diversified portfolio, investing only a fraction of their wealth in new ventures. Their accumulated knowledge of peoples and places also allowed them to choose carefully in whom to place their trust. Although trade laws and measurement systems permitted the formalization

of interpolity trade, the scale of such exchanges was often sufficiently small, it was easy to follow up on unpaid loans or to receive a new loan to cover any losses.

Entrepreneurs are also thought to incur risks when they move between the public and private sector. We have already highlighted the potentially distracting categorical distinction between public and private earlier, because in reality they never actually operate as completely separate entities. In the same way that Tesla received a \$465 million loan from the US government in 2010 to survive the effects of the Great Recession or the way in which today's billionaires exploit tax loopholes that governments refuse to close, the merchant-entrepreneurs of ancient Mesopotamia were supported by the temple and palace elites. In the course of their ventures, merchants still took on personal risks, both to their wealth stores and to their physical safety (as accounts of brigands and murdered merchants illustrate), but state-underwritten safety nets of various types were, nonetheless, prevalent. From the earliest periods of the professional merchant class in the 3rd millennium BC through to the 2nd millennium and the age of great empires, the 'entrepreneurial state' is a clear force in the ancient economies of West Asia.

### **Entrepreneurs in the written sources**

It is this relationship between merchant and the state—still often imagined in terms of royal and religious institutions—that has driven much discussion of long-distance trade and the role of a merchant class. Although merchant activities are not yet neatly described in the earliest historical sources, their appearance in lexical lists from the Early Dynastic IIIa period (2600–2450 BC) attests to their prominent place in Mesopotamian societal structures.<sup>2</sup> Tablets of one of these lexical lists, ED Lu E, one of the examples of the 'Standard Profession List,' have been discovered at sites including Abu Salabikh, Fara, Nuzi, Kiš, Urkeš and Ebla. This update was one reconfiguration of the earlier profession list, ED Lu A, which did not include the *dam-gār*. Copies were widespread, evidence of the growing importance of merchants as part of the working practical vocabularies taught in the mid-3rd millennium (Veldhuis 2010: 380). It is entirely possible that merchants, as a separate category of person in charge of securing and managing exports and imports, existed already in the Uruk period, as indicated by materials found at the Eanna complex Uruk and elsewhere. But it is not until the 3rd millennium BC that merchants are visible as fully-fledged professionals deeply entrenched in hierarchical city-states.<sup>3</sup>

There are references to goods like copper and textiles, which are believed to have originated in Dilmun (modern-day Bahrain), in Uruk III and Uruk IV

2 Such lexical lists originated in the Late Uruk period (ca. 3200 BC) with the very advent of writing and continued to be copied into the Old Babylonian period despite a drastic overhaul of the lexical corpus tradition in the early Old Babylonian period.

3 For example, Stein's argument that traders were actively involved in establishing a settlement at Uruk-period Hacinebi and were even active during the Ubaid period (Stein 1999a, b).

proto-cuneiform texts (Potts 1990: 86). However, these references only indicate trade of some sort, not necessarily an established professional merchant-based system. Some have argued that these texts demonstrate an intensive trade founded in long-standing traditions of mutual contact and formal procedures, as opposed to the more ad-hoc interactions one might associate with early trade (Green et al. 1987: 186). Whether merchants were organizing such expeditions in this period is unknown, but highly organized trade ventures clearly occurred within the egalitarian urban societies of this time. When control over long-distance trade was exercised by the temples of the Late Uruk period and the Early Dynastic, merchants were ‘attached’ to these institutions. Thus, long-distance trade is one of the forces generating the economic power of early urban elites, with merchants simply facilitating this accumulation of materials and goods from outside of southern Mesopotamia. In this model, however, the lack of natural resources and the frequency of early trade missions has been exaggerated in southern Mesopotamia. Indeed, some argue that the relative lack of importance of long-distance trade led to its privatization by ‘entrepreneurial’ merchants by the end of the 3rd millennium BC (van de Mieroop 1997: 31). Van de Mieroop suggests that these merchants were in an opportune position to take control over long-distance trade because of their political ‘neutrality.’ In other words, their detachment from temples and other elite institutions permitted them to navigate trading relations independently of the changing fortunes of the state (1997: 31).

However, there is no reason that such independent trading networks, which are discussed further later, could not have existed before the rise of elite institutions and dynastic rule. The evidence for ‘entrepreneurial’ activity may not be visible in the royal inscriptions of the Early Dynastic and Akkadian rulers, who boast of their ability to summon ships from the Indus and the Gulf (Frayne 1993, 1997; Laursen and Steinkeller 2017), but the foundations for merchant-led long-distance trade may have been firmly entrenched early on. This is not necessarily evidence of privatization but more of elite co-optation of trading networks and agents that continued to fluctuate down the millennia. As argued in Chapter 4, early merchants in ancient West Asia were themselves the ‘motive forces’ that Adams speaks of, creating standardized systems of measurement to exploit people and materials, especially metals, beyond the reach of political elites. It is only later that we see how elites sometimes commandeer these metrological systems to bolster their ideology of rulership. The story of the merchant class is, then, how they can both rival these dynastic elite forces while also contributing to the growing inequalities present in the citadelized cities of Bronze Age Mesopotamia.

Merchants are at the heart of the changing relationship between wealth and power during the Bronze Age. The following case studies, focusing on the Ur III period (ca. 2150–2004 BC), Old Babylonian and Old Assyrian periods (ca. 2000–1600 BC) and Late Bronze Age Ugarit (ca. 1350–1185 BC), are not meant to cover the entire history of merchants during the late 3rd and 2nd millennia, nor can they include all of the complexities found in the material. They were, instead, chosen due to the wealth of texts available and the ability to trace known individuals and their economic choices. Together, these case studies provide a richer view of the

different dynamics between wealth and power present across time and space, even when the overarching trade systems hold much in common.

***Between the household and the state: merchants in the Ur III and Old Babylonian periods***

In *Entrepreneurs and Enterprise in Early Mesopotamia*, Steven Garfinkle offers a succinct evaluation of merchants (*dam-gār*) as entrepreneurs in southern Mesopotamia during the Ur III period. *Dam-gār* were heads of households who engaged in commercial activities for which they were liable. The two key factors in this definition are personal risk and detachment from “one of the great institutions of the state” (2012: 1, n. 4). The entrepreneur and his household were considered part of the city’s private sector, whereas the ‘state’ (i.e. the palace, temple and associated institutions) is defined as the public sector. All these actors would be identified as elites by most archaeologists. Garfinkle’s study focuses on the household archives of three prominent members of Ur III society: Tūram-ilī, an ‘Overseer of Merchants’ from the not yet located city of Iri-saḡrig, Ur-Nusku, a merchant from Nippur, and SI.A-a, a ‘Chief Shepherd,’ probably also from Iri-saḡrig, and owner of the largest extant non-institutional archive from this period. It should come as no surprise that a figure such as the Chief Shepherd, though engaged in economic activities very different from that of the merchants Tūram-ilī and Ur-Nuska, would also form extra-institutional economic networks. Shepherds and merchants are both groups that know the peoples, places and routes of their wider worlds. This story is echoed in the early-2nd millennium BC in a letter from the tribal chief of pasture (Akkadian: *merhūm*) Ibal-El to the king Zimri-Lim of Mari. The letter discusses Ebal-El’s military intelligence gathering activities: “My lord knows that I am commanding nomads and that, much as a merchant who journeys through war and peace, nomads (*Hanaeans*) range on foot through war and peace, picking up local gossip as they roam” (Charpin 1990: 120–122, 2010: 119; Sasson 2015: 7–8). In this case, the Old Babylonian merchant is presented as the ultimate networker of his time—only matched by the pastoralists in his ability to move between and beyond city and regional borders.

All three men are discussed under the designation of ‘entrepreneur’ due to their economic activities, which *sometimes* operated beyond the control of institutional authorities (palace, temple), and due to their personal, profit-seeking motives. However, their relationship to innovation is less clear. By this point, their practices seem to be entrenched in normative societal practices. The ‘sometimes’ caveat is the key factor here; for the central administration and great institutions of the Ur III political system were the largest clients of the two merchants Tūram-ilī and Ur-Nuska, as recorded in their archives. That said, these two men were not direct employees of the state; rather, they facilitated the exchange of goods and commodities produced and consumed by these institutional bodies. In relieving the state of having to directly manage exchange, both merchants were able to benefit financially from the vast wealth of those institutions. This is true for both the exchange of agricultural resources within the Ur III-controlled provinces but also

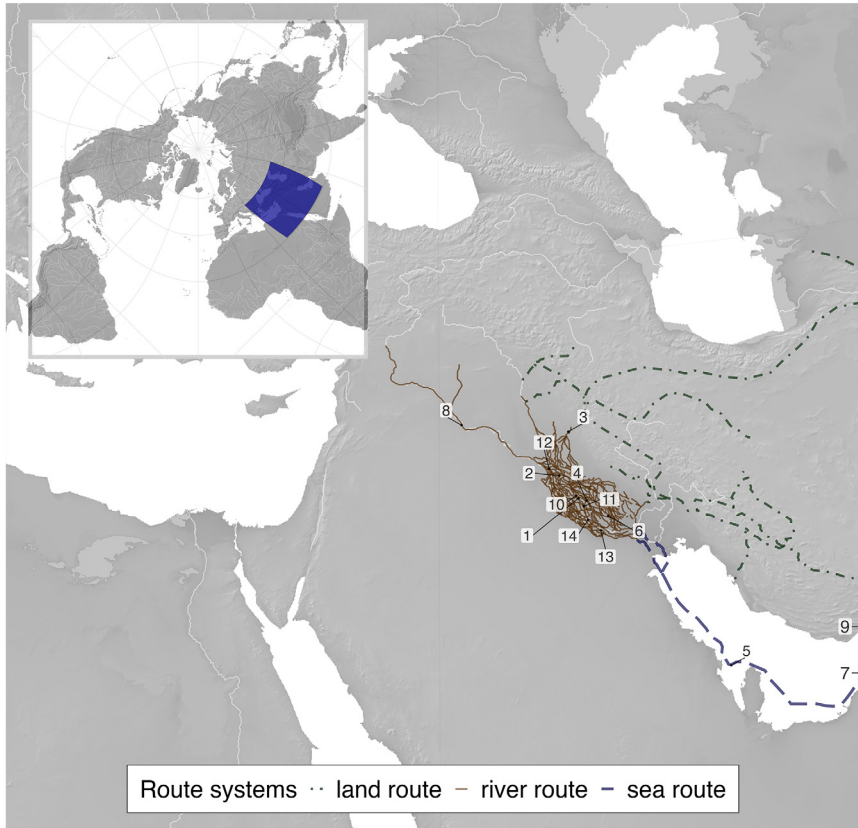
with regard to the long-distance trade that moved materials such as copper across borders (Garfinkle 2012: 143–144).

The archive of Ur-Nusku highlights the entangled relationship between the state and mercantile households at the end of the 3rd millennium BC. Comprising 64 texts, his archive suggests that his professional role encompassed three main functions with respect to the acquisition of goods for a weaving bureau (probably attached to a temple): 1) extending credit to a collective of reed-cutters; 2) delivering their harvest to institutional overseers; and 3) importing large amounts of copper.<sup>4</sup> In particular, the high quantities of goods, including foodstuffs, resins, and metals that Ur-Nusku acquired for the weaving bureau may indicate the absence of any type of centralized city market or forum for exchange in Nippur during this period (Garfinkle 2012: 133). It would seem as if the temple *needed* Ur-Nusku's and his networks to secure as many as eight different types of items within a two-month period—implying there was no other mechanism for the temple to directly acquire such goods at a reasonable price and within a reasonable timeframe (Garfinkle 2012: 134 and references therein). In this case, the elites needed to insert themselves into an already established trade network controlled by a merchant and his contacts. In return, Ur-Nusku benefited financially from the institutional client.

Two court documents in Ur-Nuska's archive relate a different type of trade partnership. One of these documents (Text 195 in Garfinkle 2012) details the transactions between Ur-Nusku of Nippur and another Nippurian merchant, Adda'a, residing in the city of Zimudar, located just west of the Zagros mountains (Figure 5.1). Their transactions record the delivery of silver to Ur-Nuska and, in the other direction, another load of silver and 3,600 liters of sesame oil to Adda'a. As Garfinkle notes, because all the transactions (apart from the sesame oil) are rendered in their silver value, the actual finished goods and raw materials behind these transactions are obscured. In any event, the multiple kilograms of silver indicate a very high volume of trade between these two men. Furthermore, the other court document (Text 185 in Garfinkle 2012) recounts an episode in which Adda'a removed 15 kilograms of gold and silver from Ur-Nuska's personal store. The reason for this deduction is unclear. Perhaps Ur-Nusku was unable to settle debts or his estate due to absence or death, but the incident reveals both his access to large amounts of wealth and the close trading and business partnership between these two merchants (Garfinkle 2012: 131–132).

The archive of Tūram-ilī also contains the names of 27 other merchants, some of whom represent at least two generations from four merchant families. The relevant texts show that family firms often worked together as partners within the larger merchants' organizational structure (Garfinkle 2012: 100–101). These family firms also operated over time, passing on the profession from father to son. The archives of a prominent merchant family from Girsu, the largest of the Ur III state's provinces, indicate that the patriarch Ur-Saga conducted his business alongside

4 In one text, he has the title “dam-gār-10,” or “the merchant in charge of ten merchants” (Garfinkle 2012: 109. Text 152).



*Figure 5.1* Map showing merchant settlements and trade routes of the Ur III and Old Babylonian periods: Ur, Nippur, Sippar, Mari, etc. (TW; data from Oppenheim 1954; Leemans 1960; Garfinkle 2012). Inset shows location of South West Asia on world map. 1 = ?Esagdana, 2 = ?Kazallu, 3 = ?Zimudar, 4 = Adab, 5 = Dilmun (Bahrain), 6 = Lagash, 7 = Magan, 8 = Mari, 9 = Meluhha, 10 = Nippur, 11 = Shurruk, 12 = Sippar, 13 = Ur, 14 = Uruk

his several sons, also designated as merchants, and that the sons often worked on behalf of each other when one or more were otherwise occupied (Garfinkle 2010a: 188–194, 2020). In addition to the accumulation of intergenerational wealth that was possible for merchants at the time, cooperation between firms, rather than, perhaps, the expected competition, may have ensured a more even distribution of wealth between the members of this professional class. Cooperation between firms and families as well as the insurance mechanisms in place to guarantee minimal losses are even clearer in the evidence from the early 2nd millennium BC (discussed later). Both the close relationship between firms and the hereditary nature of the merchant profession meant that long-distance trade could continue unabated during

periods of increased political centralization and episodes of dynastic upheaval alike (Garfinkle 2012: 153).

On the other hand, merchants did not always act to counterbalance or resist state power. They may have forged and maintained their own interregional trade and knowledge networks, including the development of cross-cultural mensuration systems, but these networks were also enormously beneficial to the central authorities. The quantity of copper and tin imported and moved by the Ur-Saga family and their colleagues, for instance, must be connected to the strategic importance of these metals in state-building activities like warfare (Garfinkle 2020: 77). By promoting the status and interests of these men, the palace and temples facilitated their own accumulation of wealth and knowledge, building a web of elites who depended on them as well.

The crown actively created new networks of elites whose activities crossed older political boundaries and who helped bring into existence a statewide community tied directly to the royal household. We find these notables, most prominently in the military and in economically significant professions, especially those related to trade or to animal husbandry and management.  
(Garfinkle 2013: 156)

In their analysis, Garfinkle and others (Steinkeller 2003) do not diminish the relationship between these so-called ‘notables’ and institutions, but rather, elucidate their role as those that can shift between public and private enterprise depending on specific socio-economic contexts. Working with the data provided in these private archives offers an emic perspective on the variety of mercantile activities in the 3rd millennium BC. They are flexible and adaptive, armed with both insider knowledge of their own urban and regional networks as well as those at the margins of the larger Ur III state. Garfinkle agrees with Gelb’s assertion that:

It is impossible to speak of one type of economy to the exclusion of all others, be it temple or state or private. All three co-existed, with a shifting degree of emphasis on one type or another depending on the prevailing socio-economic conditions in the country. This is true of the earlier phases of Mesopotamian history under scrutiny in this study, as well as of all the later phases.  
(Garfinkle 2012: 27 quoting Gelb 1967: 7)

Merchants’ specialized knowledge of the landscape and foreign social networks could be harnessed not only for elite resource extraction prerogatives but also for personal wealth accumulation.

This type of entangled relationship between so-called public and private enterprise has been long-documented for the Old Babylonian period (ca. 2000–1600 BC), but it is only in the last few decades that the similarities between Old Babylonian mercantilism and that of the earlier Ur III period have come to the fore. In the Old Babylonian period, archives from cities such as Ur, Larsa and Sippar also demonstrate the variety of merchants’ activities related to long-distance trade



as well as commerce within their mother cities (Leemans 1960; van de Mieroop 1992). With regard to long-distance trade, texts excavated from early Old Babylonian Ur recount voyages by the *alik Telmun* (those who go to Dilmun) between Dilmun and Ur. These texts indicate that Ur was the port of entry for all sorts of materials, including semi-precious stones, carnelian, shells, spices and ivory—as well as large quantities of copper from Magan (modern-day UAE, northern Oman, parts of coastal Iran). In return, Ur exported agricultural and craft products (van de Mieroop 1992; Oppenheim 1954: 195–197). One such Ur merchant, the infamous Ea-nasir, never went by the designation of *dam-gār* but only as one who travels to Dilmun. Many of the merchants in the Old Babylonian Ur archives, of which there are many, were, likewise, designated by their trade route. Described as the “worst businessman of the 18th century BC” (Killgrove 2018), texts presumably from Ea-nasir’s archive indicate that much of his import of copper was handled in a direct and personal (and perhaps inefficient) manner, with his private clients and associates corresponding through letters (van de Mieroop 1992: 202). The men who traveled to Dilmun also invested in each others’ enterprises, collecting small investments from their colleagues to finance their journeys. In the case of Ea-nasir, each investor only contributed one previous item—such as a silver ring, headband or basket—in order to minimize the risk to their stake (van de Mieroop 1992: 196 citing Butz 1979: 372–378).

At the same time, however, texts from the Nanna-Ningal temple in Ur show that, originally, long-distance merchants paid tithes consisting of goods in kind (copper, shells, semi-precious stones, etc.) (van de Mieroop 1989). From the time of the ruler Warad-Sin (r. 1770–1758 BC), the time of Ea-Nasir, it is clear that merchants also transferred large amounts of copper, although not as taxes, to the palace, which indicates it may have taken over the trade with Dilmun by this point (van de Mieroop 1992: 197). In Larsa, there is evidence that merchants also worked more locally with the palace, as they had during the Ur III period. Merchants were sometimes tasked with collecting taxes and selling off surpluses from palace-owned land. These products were converted into silver, but records indicate that several years could pass before the palace treasury requested their profits; merchants could, thus, use this silver for expanding their own ventures and investments, profiting from the palace’s resources for some time (van de Mieroop 1992: 203).

This mutually beneficial relationship between the elite institutions and merchants becomes explicitly clear in social hierarchies of Old Babylonian cities during this period. In Sippar, for example, one can trace how the figure designated the ‘Overseer of the Merchants’ shifted from a judicial to administrative role and became increasingly enmeshed in local politics. Merchants are mentioned in the texts from Sippar relatively infrequently, and the port authority (*kārum*) also appears only a few times as a place to hire boats or from where soldiers depart, as opposed to the trading hub of the city (Harris 1975: 68). This is not to argue that long-distance merchants had no place at Sippar—quite the contrary—there is textual evidence that Sipparian merchants lived and worked in cities as far flung as Susa and Mari but that the archives deal with the *kārum* less as a physical space and more as a legal decision-making body.

An overseer of the merchants is listed as the head judge of the *kārum* in two court documents, and by late Old Babylonian period (17th–16th centuries BC), the *kārum*'s activities had expanded to cover important matters of municipal administration. For example, during the reign of Ammī-ditāna (ca. 1683–1647 BC), the *kārum* acted under the “Overseer of Merchants” Ilšu-ibni to provision a fortress with grain and weapons (Richardson 2010: 15–16). This same figure is known from impressions of three different seals, which describe him as both the “Overseer of the Merchants” and as a “Servant of the King” (Frayne 1990: 417). This title, which places the merchant in a close advisory role vis-à-vis the city ruler, is known from the impressions of several other merchants as well. While Harris is correct in stating that such evidence does not directly link these figureheads with long-distance trade and related merchant activities (1975: 73), the fact that one of the chief administrators of the city is still named as the “Overseer of the Merchants” reflects the extent to which some members of this profession had themselves been transformed into powerful urban elites.

The authority held by some merchants was connected to civic institutions, and in some cases, as demonstrated by the seal impressions of certain officials, could even be connected to the king himself. However, such relationships do not necessitate a strong ruler with control over commercial interests such as trade. In fact, the existence of well-connected merchants with some legal and political authority can be tied to Seth Richardson's ‘low-power’ model of the state for the Old Babylonian period (2017). Even in the early Old Babylonian period, it is clear that the state, as embodied in someone like Hammurabi, had very little to do with matters of commercial law. Prices were not set by any state institutions, and the weights and measures in use were far more varied than the small and large units set out in the Law Code of Hammurabi (Richardson 2017: 35). Indeed, Richardson has described Hammurabi's code itself as a piece of “lousy propaganda,” since it so clearly illustrates how little involvement the king had in all matters of jurisprudence, not just in the commercial realm (2017: 39). A low-power state—or weak king—had much of their authority mediated through the networks of merchants and other officials who were very much “rooted in the politics of personal, face-to-face relations” (Richardson 2017: 44). While these kings may have been weak, it remains notable that Mesopotamian merchants of the Old Babylonian period (and the Middle Bronze Age as a whole) did not become powerful oligarchs, which, we argue later, are wealthy individuals who wield power that rivals the state. Regardless, merchants used their own networks and skills to their advantage, benefitting from and acting as a counterbalance to royal dynasts.

Mazzucato's work on modern entrepreneurship can, once again, help frame this sticky relationship between the state (public) and the supposedly free-agent merchant (private) during the Bronze Age. She does this not by disentangling the threads that bind the two and categorizing various economic activities into one or the other but by dissolving their previously assumed division. In her synthesis of wide-ranging examples, involving research and development in various industries, Mazzucato demonstrated that even in the contemporary US, which lauds the value of private sector wealth creation, “it is the State that has been engaged on a massive

scale in entrepreneurial risk-taking to spur innovation” (2013: 79). For example, the Small Business Innovation Research (SBIR) Program, initiated under the Reagan administration in 1982, obligated certain governmental agencies to allocate some of their research budget toward independent start-up firms. SBIR was also used to thread together local, state and federal institutions, and on an annual basis, provides \$2 billion to for-profit firms to transform their innovations into commercially successful technologies (2013: 85). More recently, NASA selected Elon Musk’s SpaceX program from a group of three competitive bids to build a new lunar lander as part of its Artemis program. Although the SpaceX program will spearhead this initiative, NASA has been guaranteed \$6.9 billion from the federal budget to partner in this initiative.

All this goes to show that a ‘private sector’ never operates in a vacuum; what is considered ‘private’ is always politically, socially and economically embedded into the state’s infrastructure. Even a figure such as Elon Musk, who has styled himself as an independent innovator, cannot fly into space without governmental assistance. Furthermore, billionaires only exist because the state tacitly or explicitly allows—or even encourages—such wealth accumulation. The entrepreneurial rhetoric is merely used to explain away such severe wealth inequality. In his evaluation of the Ur III period, Widell remarks that: “it is necessary to view private and public aspects of the Ur III economy as being integrated with each other rather than being opposed to one another—the latter being a modern conception lacking any foundation in the textual evidence from Mesopotamia” (2008: 208). The same sentiment can, of course, be applied to the Old Babylonian period and after. Yet, the work of Mazzucato highlights how this faulty dichotomy between ancient and modern entrepreneurs not only obscures past data but also current realities. Modern entrepreneurs and their enterprises are just as enmeshed with state or governmental funding and agendas as those living 5,000 years ago. Assyriologists have not only cast off the limiting categories of public and private, but Mazzucato has demonstrated how false these categories were to begin with.

### *The Old Assyrian trade network: a mercantile city-state*

The merchant family firms of Middle Bronze Age Assur (‘Old Assyrian Period,’ ca. 1950–1700 BC) are the case study nonpareil for supposedly entrepreneurial mercantilism in ancient Mesopotamia. In brief, merchants (*tamkārums*) and their associates established a trade network that extended from their home city of Assur, located on the banks of the Tigris in northern Mesopotamia, as far as the central Anatolian plateau (Figure 5.2). During its heyday, the network included nearly 40 communities of Assyrian merchants working and residing in both larger Anatolian settlements (*kārum*) and smaller outpost communities (*wabartum*) (Barjamovic 2011: 411). The Assyrian merchants traveled the roughly 1,000-kilometer distance by donkey caravan, transporting textiles and tin to Anatolia, returning with silver and gold to invest in new ventures (Figure 5.3). The wealth accumulated by the most successful merchant families was substantial: one could gain a 100% profit on tin and 200% on textiles, making some of these families the millionaires of their

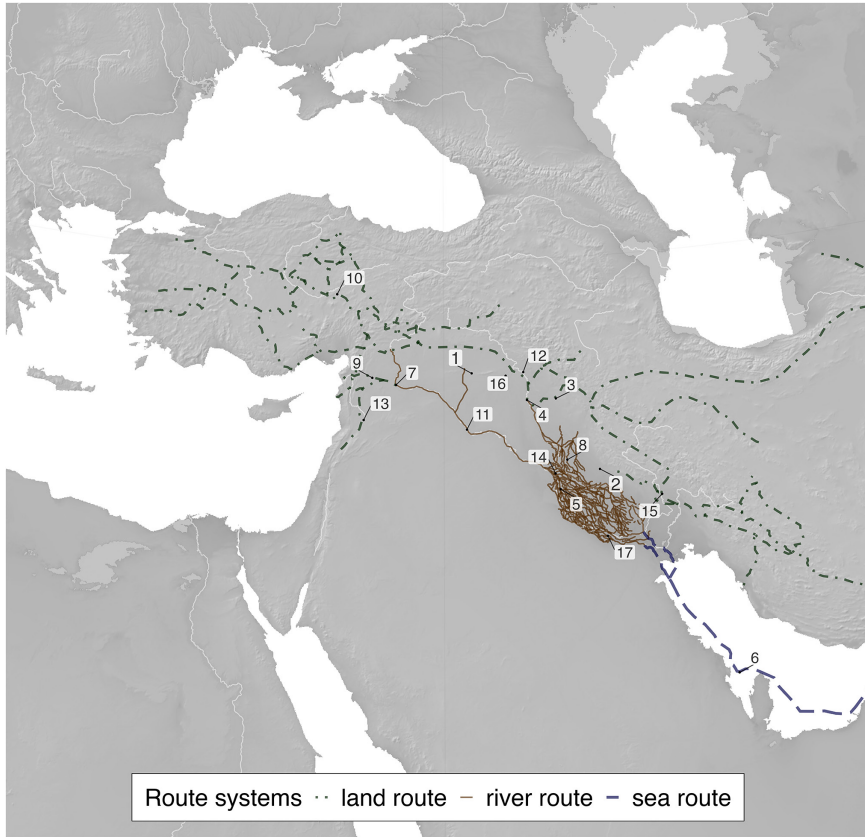


Figure 5.2 Map showing merchant settlements and trade routes from the Old Assyrian period: Kanesh etc. (TW; data from Palmisano 2017). 1 = ?Kurda, 2 = ?Simurram, 3 = Arrapha, 4 = Ashur, 5 = Babylon, 6 = Dilmun (Bahrain), 7 = Emar, 8 = Eshnunna, 9 = Halab, 10 = Kanesh, 11 = Mari, 12 = Nineveh, 13 = Qatna, 14 = Sippar, 15 = Susa, 16 = Tell al-Rimah, 17 = Ur

day (Kuhrt 1998: 28). Some—but not all—individual merchants managed large amounts of wealth so successfully that even the inescapable losses incurred as part of high-risk trade ventures did not seem to create financial crises for their families (Larsen 2007: 105).

These same Assyrian merchants managed the trade of wool and copper within Anatolia (Dercksen 1996; Lassen 2014; Veenhof 2017). In the Old Assyrian context, the term *kārum* was divorced from its original meaning as a quay or harbor, and instead, referred to the political community of the Assyrians in Anatolia. Thus, the updated term indicated a decision-making body, closely tied to similar institutions in Assur and protective of its own interests, and yet, not physically separate from the diverse local populations of the Anatolian kingdoms (Larsen 2015: 149; Yazıcıoğlu-Santamaria 2015: 77). The center of this Assyrian political

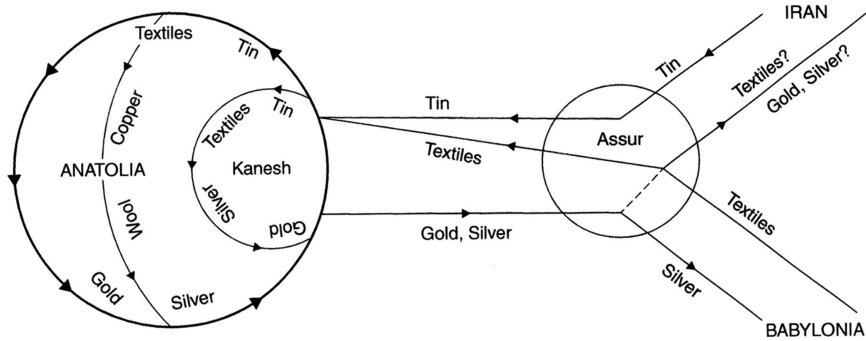


Figure 5.3 Schematic drawing of the OA trade system (Veenhof 2017: 61)

configuration in Anatolia was the large city-state of Kanesh, which has been continuously excavated for the last 60 years and from where most of the archaeological and textual information about these merchant communities emerges.

The private household archives of the Assyrian merchants living in Kanesh provide unparalleled data for a long-distance trade network, not only for ancient West Asia but for the entire ancient world. The nearly 24,000 cuneiform texts found in the merchants' homes have yielded much historical evidence about the Middle Bronze Age in both Assur and Anatolia and generated several decades of scholarship on the 'Old Assyrian Period.' The methodical study of these texts has led to the reconstruction of both the merchants' trade and business relationships and fleshed out the physical and socio-political framework that facilitated such a complex and large-scale trade venture. In addition, the personal correspondence of the merchants sometimes delves into the minutiae of the social and legal relationships forged during this period of sustained intercultural contact, allowing a glimpse into the life stories of men and women living ca. 4,000 years ago.

Upon the study and publication of these texts, many aspects of the merchants' trade and other business dealings were quickly identified as something not seen before in other periods of Mesopotamian history (Larsen 1976; Veenhof 1997). The Old Assyrian case study, full of ambitious profit-seeking traders, personal and collective investments, long-standing relationships centered on debt and credit, structured financial products and the accumulation of large amounts of personal wealth, became the *de facto* cudgel against any remaining 'primitivist' economic models. Not only were the Assyrian merchants described as 'modern' when compared to their 3rd-millennium predecessors; they were likened to the powerful merchant firms of medieval Europe (Larsen 1976: 92ff., 2015: 112).

In a call for Graeco-Roman historians to look beyond their own disciplinary squabbles over the nature of ancient economies, Amelie Kuhrt designated the Old Assyrian material as the prime example of the types of 'sophisticated trade

structures that could and did exist' and drew upon Assyriologist Mogens Trolle Larsen's grand belief that:

The construction of elaborate systems of accounting, of investment and partnership structures, and of an administrative system of great elegance and efficiency led to a commercial organization which in its complex details is paralleled only millennia later by the traders of the Mediterranean cities. The famous commercial revolution of the thirteenth century in Western Europe, which was characterized by a major shift in business organization away from the travelling, itinerant trader towards the sedentary businessman seated behind his desk is parallel in many details by the material from Kanesh.

(Kuhrt 1998: 29 quoting; Larsen 1987: 54)

Champions of modern capitalism have taken this comparison even further. In a précis of his book *The Birthplace of Capitalism—the Middle East*, Nima Sanandaji, head of a Swedish free market think tank, writes that “Iraq and Syria feature heavily in the news, and the focus is nearly always on human suffering. Yet it was in the same countries that the first entrepreneurs, the first enterprises, the first early banks and the first early financial speculators emerged around 4,000 years ago” (2018). Even *The New York Times* has honed in on the image of the ‘capitalist’ Old Assyrians with an article titled ‘The V.Cs of the B.Cs’ (V.Cs meaning venture capitalists), which overviewed the work of a team of economists and Assyriologists in applying Jan Tinbergen’s Gravity Model to the Old Assyrian textual data (Barjamovic et al. 2019; Davidson 2015). The model is built on the formula that the trade between two markets equals those two markets multiplied and then divided by the distance that separates the two (Tinbergen 1962). The team found that the Old Assyrian trade network, like more modern case studies, supported the model—from which they drew universalizing conclusions about the ‘natural’ ebb and flow of trade:

However much politicians might want to change those outcomes, they have only crude tools at their disposal: They can stop trade through blockades, slow it through tariffs or try to jump-start it with trade agreements. What they can’t do, at least not reliably, is shape it with precision to achieve their preferred outcomes.

(Davidson 2015)

The same team has also argued that modern ‘structural gravity models’ can account for the relative economic sizes of cities located along the routes of the Assyrian-Anatolian trade network and that these sizes roughly correlate with modern cities that can be linked to their ancient predecessors (Barjamovic et al. 2019: 1500). Though such studies are not the focus of this chapter, this sustained interest in the Old Assyrian network speaks both to 1) the continued desire to seek out entrepreneurs and other ‘capitalists’ (often equating these types with long-distance merchants) in the ancient past and 2) the types of deep historical questions that can be

asked by integrating modern economic theories and models with archaeological, or in this case, Assyriological, data.

As discussed, Ur III and Old Babylonian merchants operated both as agents of the central institutions and as independent profit-seekers. Like the Old Assyrian long-distance trade networks, Old Babylonian networks were also regulated through overarching laws and depended on a professional merchant class organized in *kārum*s to move goods that were produced within polities that served as nodes in the greater network (Benati et al. 2021: 5) This type of organization is most visible in the textual evidence from Sippar and it is becoming clearer that the Old Assyrian trade network was not unique in either its range or general mechanisms during the Middle Bronze Age (Barjamovic 2018). The abundance and richness of the Old Assyrian evidence, however, allows us a deep look into the relationship between the state and the entrepreneurial class that is unparalleled elsewhere.

During this period, the ruler of Assur shared his political power with the City Assembly (*ālum šaḥer rabi*), often referred to in texts as simply ‘The City.’ Unlike his Babylonian contemporaries, the Assyrian ruler did not refer to himself as ‘king’ (*šarrum*), reserving that term for the god Assur, and instead, emphasized his role as a ‘steward’ (*iššiakkum*) of the god or as an overseer (*waklum*) of the city assembly’s affairs. It is in this position as *waklum* that the ruler sent some 26 official letters, mostly to the *kārum* of Kanesh, concerning legal and administrative affairs and a further ten letters concerning private matters (Erol 2018: 48–50). The official letters pertain to legal decisions involving individual merchants’ affairs and decisions made by the city assembly such as the famous decree (Kt 79/k 101), establishing a rather threatening moratorium on selling gold to foreign merchants:

The tablet with the verdict of the City, which concerns gold which we sent to you, that tablet is cancelled. We have not fixed any rule concerning gold. The earlier rule concerning gold still obtains: Assyrians may sell gold among the other (but) in accordance with the words of the stele, no Assyrian whosoever shall give gold to any Akkadian, Amorite or Subarean. Who does so shall not stay alive!

(Sever 1990; Veenhof 1995)

The special status of gold aside, this decree also clearly demonstrates how the City Assembly shaped the procedures and structures of long-distance trade. The City Assembly, which included a possible subgroup of ‘elders’ (*šībūtum*), was probably populated, at least in part, by members of the wealthier or more notable merchant families (Veenhof 2017: 72). This institution was mirrored in the trading communities abroad (Highcock 2018: 229ff.), and their *kārum* counterparts most certainly comprised merchants divided into ‘big’ and ‘small’ men (*kārum šaḥer rabi*), perhaps dependent on status acquired through their position as head of a family firm (Larsen 1976: 288–293). This decision-making body represented the entire community of free Assyrians living in the *kārum*, and it has been argued that at least every free male Assyrian with a presence at Kanesh (and other Anatolian polities) was designated in this way, and thus, was permitted to contribute to the judiciary

activities of the group (Aubet 2013: 334; Dercksen 2004: 237; Larsen 2015: 160). The ‘City’ and the *kārum*s (and *wabartums*) were the decision-making bodies structured by—and even born from—a society dependent on long-distance trade.

The private *waklum* letters also speak to the total lack of boundaries between public and private trade in Old Assyrian society, as demonstrated by the fact that prominent merchants could act as the ruler’s personal commercial agent in Anatolia. Hakan Erol has calculated the commercial value of the goods and commodities sold on the king’s behalf to demonstrate that these ventures were relatively small-scale compared to those of the most successful merchants. Trading in tin and textiles—as well as the luxury items of iron and lapis lazuli—the Assyrian rulers seemed to have treated these exchanges as opportunities to make some money on the side by tapping into the lucrative networks of their compatriots (2018: 65). Furthermore, he argues that the rather pleading language used by the ruler in some of the letters as well as the fact that one merchant, a ‘servant of the palace’ named Asqūdum, was in debt and withholding payment to the current ruler Puzur-Assur, as he had been to his predecessor Sarrum-kēn, further indicates two things. First, the power of the ruler was remarkably limited, and second, there were close personal and professional relationships between the ruler and the most prominent merchants of the city (Erol 2018: 50–53).

The power of these millionaire merchants, as either members of the City Assembly—or as men with the capacity to disregard owing their sovereign silver—is further echoed in the office of the *limmum*, or year-eponym. Unlike the southern Mesopotamian tradition, in which years were marked and named according to the king or important events during his reign, Assur marked each year by the current *limmum*-official (Barjamovic et al. 2012). The men who fulfilled this position were drawn from the prominent families of the city, and the *limmum* was the most powerful individual in the socio-political topography of Assur, often exceeding the ruler himself. The year-eponym was not only the chief representative of the city and its assembly but was also able to personally extract payment from the city’s other citizens and pay it back into the city’s coffers. This extractive function included the authority to take hostages, sell households and their contents and enact pledges, inspiring compliance from the Assyrian population. “Nobody is able to stop the *limmum*” is a phrase used in a text recording a *limmum*’s offer to provide a few months respite before selling an indebted merchant’s household (Veenhof 2003: 75, fn. 28). Although the eponym lists do not record all of the year-eponyms’ professions, nor is the overall prosopography always clear, many of the year-eponyms were merchants well-known to have been active in long-distance trade networks. The rotational nature of this position, its year-long tenure and its connection to multiple elite families ensured that no one kin group, *including the royal dynastic family*, could gain too much power. Moreover, the involvement of this official with policy-shaping and the moving of wealth between individuals and institutions, again, speaks to the dissolution of any real separation between the state and entrepreneur. Assur of the early-2nd millennium was an entrepreneurial state in which individual innovation and wealth-seeking were both bolstered and constrained by the government.



In his criticism of Maria Eugenia Aubet's analysis of public versus private profit in the Old Assyrian period (Aubet 2013), Larsen implores us to throw out deeply entrenched views of the role of the state and that of the entrepreneur in ancient West Asia. As evidenced by the merchants' full participation in shaping and enacting trade policy both at home and abroad, we could argue that the merchants, collectively, *were* the state.

Decisions concerning all aspects of the Old Assyrian trade were taken by a group of people who had a personal stake in it, the men in Assur who formed the merchant elite. These are not abstract, impersonal institutions but real people. There is nothing in the available evidence that points to the existence of a different, non-private sector of the commerce. She claims that previous scholars have found that "the State" was absent in colonial matters, but that is incorrect to her rhetorical questions—"Strictly speaking, can it be said that the state was absent in Old-Assyrian trade?"—is gratuitous, simply because no one has said it. The question is how you define "the State."

(Larsen 2015: 278–279)

This phenomenon is, perhaps, best illustrated by an example in which this status quo has been disrupted. The trading relationships between the foreign city-states and that of the Assyrian merchants were at least partly regulated by formal treaties. Of the four extant treaties, three date to the later stages of the Old Assyrian period (Level Ib) and one dates to the heyday of the trade during Level II (Çeçen and Hecker 1995; Eidem 1991, 2011; Günbattı 2004; Veenhof 2008, 2013). Unlike Old Babylonian treaties, which were normally ratified between individual rulers (Lafont 2001: 284–286), Old Assyrian treaties are unusual, in that they were established between the foreign ruler and the City, or collective assembly. A section of the draft text of the Level II treaty (kt n/k 794) between the City and an unknown city most likely in the region of Ḫaḫḫum is included here for clarity.

In your land, there shall be no rope, no nail, or losses whatsoever of the Assyrians. If losses of goods have happened in your land, you should go out and search and compensate us. If bloodshed occurs in your land, you must hand over the murderers to us and we shall kill them. You may not allow Akkadians to come up here. If they travel through your land, you should hand them over to us so that we may kill them. You shall not claim anything more from us. Just as with your father—you can take 12 shekels of tin per each caravan ascending and 1 ¼ shekels of silver per donkey from each downstream journey. Just like your father you can shall not take anything beyond this.

(Highcock 2018: 294–295)

This treaty, like the three later treaties, is written in the collective first person and not in the voice of the city's ruler. It includes the Assyrian merchants' ability to mete out capital punishment, the very prerogative most often used to define the state, as well as a reaffirmation of the taxes owed to the Anatolian authorities by

the merchants traveling over their lands. Similar stipulations are laid out in the other treaties with the rulers of Apum, Ḫaḫḫum and Kanesh, and more importantly, in all four treaties, the merchants place themselves on equal footing with the foreign royal authorities (Highcock 2018). This text also provides information about the entangled and collective interests of merchants and rulers and the type of risk mitigation provided by the Anatolian authorities to preserve these interests. Well-equipped donkey caravans loaded with valuable goods would have attracted brigands, and yet, there are few references in the texts to particular dangers faced whilst on the road. However, guards stationed along the roads are occasionally mentioned, and this treaty draft makes clear that the merchants are to be fully compensated for any losses (both human and material) incurred whilst working in foreign lands (Barjamovic 2011: 26–27). These types of agreements would, likely, have fulfilled the same role as insurance companies involved in later medieval maritime trade (Barjamovic 2011: 2; fn 8).

Unfortunately for the Assyrian merchants, Šamši-Adad intervened in Assur's affairs at the end of the 19th century BC, overthrowing the native dynasty and disrupting the trade system as laid out in treaties preceding and following his rule. This disruption is made clear in a letter (kt 01/271) dated to the year of Šamši-Adad I's death (ca. 1776 BC), which occurred during the waning years of the Assyrian presence in Anatolia. The letter refers to the previous correspondence from Hurmeli, King of Harsamna, to the city assembly at Aššur and complains about the perceived Assyrian involvement in the military conflict between Harsamna and the neighboring Anatolian polity, Zalpa. In the tradition of the treaty texts, this letter represents a direct relationship between an Anatolian king and Aššur, as embodied by its merchant population. Furthermore, Hurmeli is directly circumventing the authority of the king Šamši-Adad, whom Hurmeli still thought to be alive, by opening up a line of communication with the merchants directly. Indeed, at the end of the letter, it is the merchant collective that pleads with Hurmeli to re-open the caravan roads and sends a diplomatic gift of '80 good-quality Assyrian textiles and 20 Akkadian textiles' for his personal dress. Such diplomatic gift-giving, similar to that described in the Late Bronze Age Amarna letters, is usually coordinated by kings.

Repeatedly we fell at the feet of our lord and said: "Desist! Do not give troops to the man of Zalpa lest you incur the anger of your brother, the man of Harsamna, the great king!" We submitted this plea to our lord and fell at his feet, but he answered: "You merchants—are you my own slaves or the slaves of the man of Harsamna? Indeed, will you take up weapons and follow after me? No, you are merchants! Keep pursuing your business as well as you can on the caravan trail! Why do you interfere in the affairs of us important kings?"

(Günbattı 2005: 450, 2014; Larsen 2015: 144)

As described here, the relationship between the merchants and their ruler to the foreign king Hurmeli is highly antagonistic. Of course, the reader only has access to the merchants' narrative of the events, but even if exaggerated, it illustrates their

disdain for Šamšī-Adad as well as his interference in a mercantile system that had run fairly smoothly for nearly two centuries. Šamšī-Adad had, supposedly, referred to Assyrian citizens as ‘my servants/slaves’ and demoted their status to that of mere merchants who should stay out of politics. However, from the merchants’ perspective, Assur was never a city with a citadel and king responsible for stimulating trade agreements and managing international affairs: it was an entrepreneurial state where trade *was* politics, and merchants were some of its best politicians.

The well-attested millionaire merchants of the Old Assyrian and Babylonian periods, although representing a minority in the class as a whole, were able to transform their wealth into power. In the case of the Old Assyrian merchants of Assur, this manifested in the wealthier merchants, or ‘big men’ (*rabiūtum*), holding more power as an executive board in the city’s collective decision making. In the southern cities of the Ur III and Old Babylonian worlds, where the merchant class was excluded from the highest echelons of power, they still, often, had ties to dynastic elites. In the Old Babylonian period, officials described as merchants held positions of great judicial authority. Like wealthy people today, they gained influence through philanthropy and political power through lobbying and used their wealth to affect societal change, even if on a much smaller scale than the wealthiest figures of today. Long-distance trade generated opportunities for a few, providing access to increasing quantities of wealth, including property and slaves. In other Mesopotamian places and periods of the 2nd millennium BC, the cuneiform record for long-distance trade is far scantier, and often, was generated entirely from palace archives (see Faist 2001 for the Middle Assyrian period), but there are hints of merchants operating their own independent networks (such as at Nuzi; see Zaccagnini 1977) alongside any business for the state.

### *Late Bronze age Ugarit*

The north Syrian port city of Ugarit has yielded the most substantial evidence for trade and traders in ancient West Asia and the eastern Mediterranean during the Late Bronze Age. Both trade-related texts from the palace archives and archives found within merchants’ private households detail the role that Ugarit and its inhabitants played in the wider political and economic sphere. Although not at the same level as the ‘great powers’ of this period (Egypt, Hatti, Assyria, Babylonia and Mitanni), Ugarit had direct trading and diplomatic relationships with cities along the Syro-Palestinian coast as well as with Egypt, Cyprus, Crete, Ura in Cilicia, and Emar and Carchemish further inland ([Singer 1999: 653–678; McGeough 2007; Monroe 2009: 31]; Figure 5.4). As discussed by Christopher Monroe, the bounty of evidence for Ugarit’s merchants, or ‘entrepreneurs’ as he often designates them, has placed it at the center of the old and tired battlelines of the formalist and substantivist debate—often alongside the Old Assyrian merchants.

The consequence of this wealth of data is that, from the mid-20th century onward, the city and its merchants have been “subjected to an impressive range of Marxian, Weberian, and other socioeconomic models” (2009: 6), which, despite best intentions, have created a “floating model of the socioeconomy,” which drifts

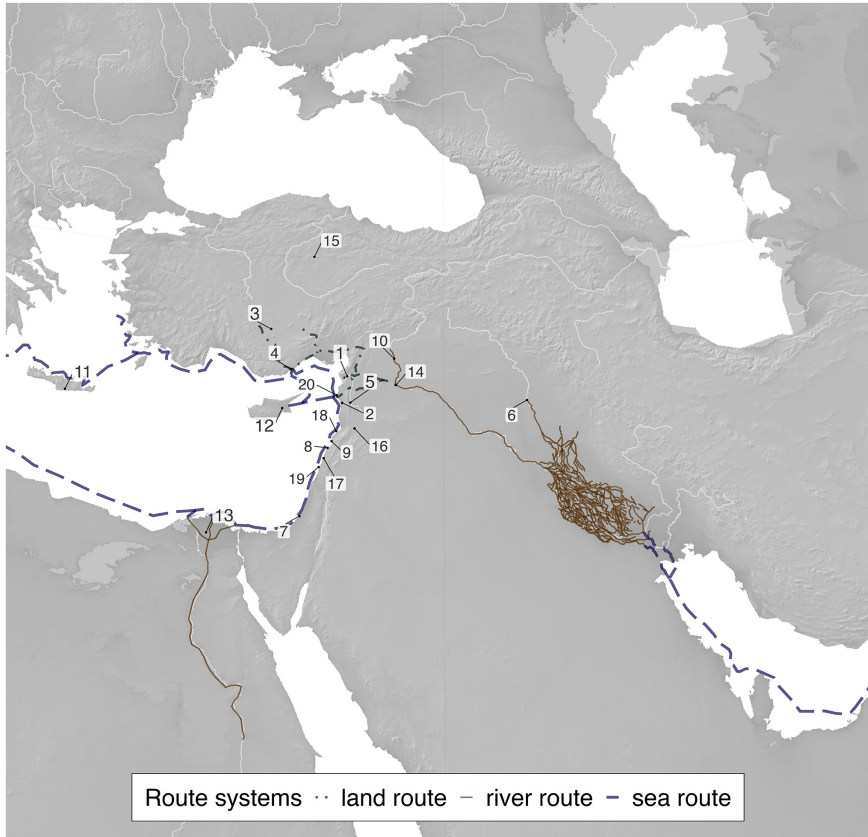


Figure 5.4 Map showing merchant settlements and trade routes from the Ugaritic period: Ugarit, Carchemish, Assur, Nineveh, Babylon Hattusha, Ura (TW; data from Singer 1999). 1 = ?Apsuna, 2 = ?Siyannu-Ušnatu, 3 = ?Tarḫuntašša, 4 = ?Ura, 5 = Amurru, 6 = Ashur, 7 = Askelon, 8 = Beirut, 9 = Byblos, 10 = Carchemish, 11 = Crete, 12 = Cyprus, 13 = Egypt, 14 = Emar, 15 = Hattusha, 16 = Qadesh, 17 = Sidon, 18 = Tripoli, 19 = Tyre, 20 = Ugarit

between an economy of state-controlled enterprise and that of private entrepreneurs depending on one's *a priori* theoretical leanings (2009: 7). This push and pull between the state and economic and political independence is driven by the very nature of the textual sources, which, as mentioned, include both royal and merchant-owned archives stored in the palace and private homes. Much can, thus, be gleaned about individual merchants' trading activities and relationships, which also highlight the diversity of mercantile ties to the royal family of Ugarit during this period. Lower-level merchants in this period doubled as transporters and managers such as sailors, captains, caravanners and caravan leaders employed by the *tamkāru* firms. The most powerful *tamkārus* had the ear of the king and transported

royal endowments alongside their own. It is these merchant ‘bosses’ and their relationship to the state that we will discuss here.

Linked through both hierarchical and horizontal connections, the diverse cast of characters that emerges from Ugarit reveals further interactions between dynastic elites and merchants. Some of these figures worked for both institutions and themselves as in the Ur III period and/or wealthy members of collective institutions, such as in the Old Assyrian and Babylonian contexts, but also magnates wielding enormous amounts of wealth and socio-political influence. Due to their wealth and royal access, some have even been likened to modern oligarchs (Bell 2012). Catherine Bell has compared the best-known and most successful merchants of Ugarit to the Russian business oligarchs who rose to power in the aftermath of the collapse of the Soviet Union. Just as modern Russian oligarchs derived their vast wealth from fossil fuels or metals, the Ugarit merchants honed in on the trade of tin—a relatively rare but vitally important resource for the business of bronze-making—and thus, warfare. Oligarchs will be discussed in more detail in the next chapter, but put simply, they are individuals who have gained enough wealth and power over the labor of others—capital—to disrupt the traditional power structures of society. As Bell notes, this definition is one espoused by Vladimir Putin himself, who saw oligarchs as able to cut out the state, as one would cut out the middleman in any lesser transaction (Bell 2012: 185; Duncan 2007: 2). As will be seen, however, these Bronze Age ‘notables’ were not oligarchs in the sense that they wielded unfettered independent power that contested that of the state. They were not true rivals to the royal authorities; for, despite any wealth made through international trade, the great men of Ugarit continued to be financed, protected and even curtailed by those royal authorities. The ability to accumulate vast amounts of private wealth does not conflict with the concept of the entrepreneurial state but is bolstered by it.

Bell focuses on four merchants—Rapanu, Yabninu, Urtenu and Rašap-anu. Each had households located to the south and east of the palace, with archives that mention trade in metals, and those with at least one document written in the Cypro-Minoan script. No such documents have been uncovered in the palace itself (2012: 181–182 also citing Ferrara 2005). Although Cypro-Minoan is undeciphered, its very presence reveals links with the Cyprus sphere. Bell’s merchants were not endowed with land by the palace (2012: 182; Monroe 2009: 106, Table 4.1), although their archives clearly indicate that they did engage in business with the palace on several occasions. In addition, letters of international diplomatic importance have been found in their archives, indicating that they were not only involved in elite-managed international trade but also in managerial roles with regard to statecraft. This has led Bell to argue that the “distinction between private and state enterprise was not as clear as it is today” (Bell 2012: 182). While she is correct in that these prominent figures were entangled in economic relationships both within and beyond their city and its local rule, the modern situation is, once again, mischaracterized.

Unlike true oligarchs, none of these men or other high-profile merchants known from other sources seem to have disrupted the palace in any significant way. Their

spheres of trade and property (including ships and donkeys) may have been formidable, as was their ability to circumvent certain aspects of a deeply hierarchical city, but they were no real match for the royal dynasty. For example, the merchant Sinaranu was granted his own ship from the king, Ammittamru II (ca. 1260–1235 BC), to run a trading franchise to Crete “free from any claim,” meaning that he was both the outright owner of the vessel and exempt from taxes (Monroe 2009: 95; Singer 1999: 676). With his own ship, he thus took on extra risk in his overall trading portfolio, but the right to the ship as well as any wealth he derived from avoiding taxes was at the behest of his king. Rapanu owned horses and donkeys and sold their services in addition to his other long-distance trading activities. Like Sinaranu, he took on extra personal risks by expanding his business in this way (Monroe 2009: 275), but, as the palace was also a major buyer of those transport animals, he was also guaranteed steady income as long as the palace and its international affairs continued to exist. They did not muster armies without permission of the king. Their titles, associated duties and houses—close to the palace and architecturally similar in design, if not scale—reveal that they were elites but also that they operated within the normative societal framework set by the palace. They are bolstered by, protected by and, in the case of the Ugaritic merchants’ contemporaries from Ura, could even be recalled by the royal family.

The city of Ura, within the kingdom of Tarhuntassa, was most likely located along the Cilician coast and was a major trading partner of Ugarit. Unlike the merchants of Ugarit, there is little concrete evidence for entrepreneurial or private long-distance merchants within the Hittite empire, leading some scholars to argue that long-distance merchants were mere extensions of the king (Hoffner 2002). We can see the tight regulation of these merchants’ activities in official correspondence between the Hittite king, Hattushili III, and the king of Ugarit, Niqmepa.

The men of Ura shall carry on their mercantile activities in the land of Ugarit during the summer, but they will be forced to leave the land of Ugarit for their own land in the winter. The men of Ura shall not live in the land of Ugarit during the winter. They shall not acquire houses or fields (in Ugarit) with their silver. But the men of Ura, the merchants, shall not claim houses or fields of the king of the land of Ugarit.

(Beckman 1996: 162–163)

This decree, most likely written in response to the Ura merchants growing their wealth in Ugarit at the expense of Ugarit’s own citizens, demonstrates the control still held by the royal houses. Disruptions caused by merchants and their wealth or influence were quickly quashed and, unlike the oligarchs of today, governments could successfully communicate and cooperate to limit their movement and property ownership in foreign lands. And, while this decree does demonstrate the control held by the Hittite king over his traveling agents, it also hints at the private, commercially oriented activities of these men whilst abroad in Ugarit. They clearly had been buying property in Ugarit and interacting with the local townspeople, king and landscape in such a way as to become economically dangerous for some locals.

### From millionaire to billionaire

Here, we have examined the world's earliest textually attested merchants and examined how their 'entrepreneurial' activities across long distances were interwoven with the state. Some of these merchants grew very wealthy, could influence state affairs or act as collective decision-makers, but there were limits to their accumulation of wealth in the long-term, and their political power was never autonomous. This state of affairs held for a long time. However, in the next chapter, will examine the appearance of a new kind of economic actor—the true oligarch, or 'billionaire.' We focus particularly on the oligarchs of the Roman world, whose power over the labor of others represents a fundamental shift away from that of the merchants and other entrepreneurs apparent in the later periods of Mesopotamian history.

Previews of this transformation appear in the same archives where we find evidence of ancient merchants. In the Neo-Assyrian period, the *tamkārūm* transforms from merchant to royal official, becoming a fairly prominent figure in the Neo-Assyrian royal sources and listed in the Standard Profession list from Assurbanipal's library (Baker 2016). They are presented as members of a household of the queen or crown prince, as direct subordinates to city governors and are involved in choosing and transporting tribute. Karen Radner likens them to figures like "Francis Drake, Christopher Columbus, or Hernando Cortez employed more than two millennia later by the kings and queens of Britain and Spain . . . their ultimate goal being to get what their monarch needs to rule the country: slaves, horses, metals, and luxury goods of any kind" (1999: 104). These men were no longer the long-distance merchants of the Bronze Age, forever blurring the lines between private and public, but elite officials managing the imports and exports of a vast empire. Although directly employed by the king, and thus, still under his authority, they grew their wealth and influence, much like their early modern counterparts. In one case, an extremely powerful *tamkārūm* named Salmānu-[. . .] writes to the king Sargon II that he, unlike the other *tamkārūs*, has still not been paid back for substantial sum of 570 *mina* of silver that he lent the crown in building Sargon's new capital city of Dūr-Šarrukēn (Radner 1999: 104–105). Not only is it striking to see a private citizen rebuking the Assyrian king, but we also note the implication that the building of a royal Assyrian city hinged on the largesse of private citizens. This shift was a new phenomenon for the Mesopotamian world, hinting at a scale of wealth that could begin to rival the established political system.

It is for this very reason that merchants continue to hold our fascination. They have long been capable of challenging the social order; through their accumulation of wealth and status, they disrupt the status quo, and from the point of view of the dynasts, can act as a destabilizing force (Monroe 2009: 9). This may be through devising and maintaining measurement and valuation systems, guarding key knowledge about foreign lands, people and goods or through their ability to avoid obligations like taxes. However, as we have seen for Bronze Age West Asia, they rarely follow through on this threat. Instead, they are deeply embedded in palace and temple economic systems and can wield effective, but still shared, political power, sometimes acting as the urban decision-making body, but always within the

power structures of any given urban community. This multifaceted and, at times, seemingly contradictory role of merchants is inscribed in the Mesopotamian view that the fates of these figures were tied up with those of the city itself. As another Sumerian proverb states: “The city’s character cannot be determined, its registrar of deeds is a merchant” (Bendt 1997: 18, 348).

Mazzacato’s entrepreneurial state provides an alternative view of state-merchant dynamics that is not rooted in the public versus private, or insider-outsider, binary. In scholars’ attempts to justifiably reject the primitivist view of ancient economies, they have projected misguided modern notions of entrepreneurialism, comprising purely private risk and innovation, onto the distant past. If we take away this divide between public and private, we can begin to discuss early states in a manner that reflects the flexibility and diverse economic activities of long-distance merchants, without disembedding them from the state apparatuses or making them servile to those governing institutions. They need not even switch between one or the other, although we must, of course, allow for some diversity of experience within this larger model. Within the paradigm of the entrepreneurial state, the function of the merchant as a state or king-maker (Oka and Kusimba 2008)—one whose activities lead to changes in economic growth and changes in political formation—can also be explored without appealing to neoevolutionary models that view merchants as the agents of transformation only at particular junctures. The role of mercantilism in the dynamics of growth and rising inequality can, thus, be traced over the course of the Bronze Age and into the new picture which emerges during the Iron Age, where oligarchs—those with the true ability to disrupt traditional political systems—come to the fore.



## 6 Billionaires

### The Iron Age origin of oligarchy

In the first part of this book, we proposed that episodes of significant and rapid economic growth were typified by markedly egalitarian societies—something that was first seen in the Neolithic and then exemplified in the world’s earliest cities. We contrasted these societies with citadels, demographically more modest affairs that were typified by (often extreme) wealth stratification and relatively low levels of economic growth. We argued that Piketty’s finding that returns from capital exceed growth ( $r > g$ ), seems like the best explanation for this pattern. We then examined how societies move from one state to another—a problem that prompted us to explore the roles of economic governance and inter-societal trade in the past. By the Iron Age, the great egalitarian cities of the preceding millennia had largely vanished, at least across much of Eurasia. In their places, the citadel and the city had fused to create a hybrid entity: the citadelized city. Thus, we routinely see great demographic agglomerations coupled with extreme wealth stratification—something that was atypical of the earliest urban centers. Now, we will examine transformations that occurred in these post-Bronze Age societies—particularly ancient Rome and China during their classical ages.

This chapter expands on the overarching narrative we began in the first part of the book. Wealth disparities in the Roman context were extreme, even by modern standards, and the textual record indicates that they became increasingly pronounced with each passing century prior to the empire’s collapse (Jongman 2006). Moreover, as we will discuss later, there is evidence that the initial emergence of an extremely wealthy Roman elite began during the 1st century BC. A diachronic analysis of coin hoards by Turchin and Scheidel (2009) has suggested that, after 100 BC, the Roman Republic experienced a significant population decline, associated with recurrent episodes of political upheaval, violence and societal instability. Much of the material evidence associated with Republican Rome has either been buried or obliterated by later iterations of the city, so coin hoards, self-contained pockets of wealth, provide a particularly useful window on inequality during these periods. It would appear that wealth inequality rose rapidly at the same time as Rome was experiencing a sharp demographic (and thus, presumably, economic) contraction, fitting Piketty’s theory precisely.

Still, it is worth adding that the theory that low economic growth is meaningfully correlated with rising inequality does not actually explain the overall magnitude

of the transformations that occurred. In other words, it does not tell us anything about the *extent* of the inequality that emerges. This is important because the scale of wealth disparities that we see in ancient Rome and China were unprecedented in human history. The aim of this chapter is, therefore, to look beyond Piketty's framework to explain why economic disparities increased to a previously unimaginable degree in the post-Bronze Age political economies of Eurasia. In a nutshell, our argument is that there were fundamental changes in the character of the ancient city around this time—a transformation that led to the emergence of 'oligarchy,' a new structural motor that drove wealth inequality to hitherto unseen levels.

### **The second urban revolution**

Profound changes occurred across the political economies of Eurasia during the 1st millennium BC, all of which had a significant impact on the upper limits of wealth inequality. First, we will consider the Second Urban Revolution in which the maximum scale of cities increased far beyond what they had been during the preceding Bronze Age. While it is true that the upper size limit of human settlements has generally increased over time, the evidence does not support a uniformitarian model of gradual escalation. Instead, there have been a number of sequential leaps in the maximum scale of urban formations. Childe's Bronze Age Urban Revolution was one such leap, already discussed in Chapters 1 and 2. Around 4000 BC, the largest sites of the southern Mesopotamian alluvium (e.g. Uruk, Eridu, Ur) were similar in scale to their Neolithic predecessors (e.g. Çatalhöyük) and did not exceed 10–12 hectares in area (Algaze 2013: 73; Cessford and Carter 2005). But a few centuries later, Uruk's size had expanded tenfold to around 100 hectares. During the later 4th millennium BC, Uruk attained the scale of a typical Bronze-Age city, with an estimated population of 25,000–45,000 people and an area of 230 hectares (Algaze 2013: 74).

Wherever we look, the cities of the Bronze Age exhibit very similar scalar limits. At its peak in the early 3rd millennium BC, Uruk approached some 500 hectares in size, with population estimates coming in at around 80,000 or so. No Mesopotamian city likely had a population in excess of 100,000 throughout the rest of the Bronze Age (Yoffee 2005). The largest Indus sites all fall squarely within this range too. Mohenjo-Daro, for instance, has a maximum areal estimate of around 106 hectares (Jansen 1993b) and a supposed population of perhaps 40,000 (Possehl 2002). Dynastic Egypt covers a much longer period, and Old Kingdom urban centers are typically estimated to have relatively small populations (e.g. Memphis, at around 6,000 people). In later periods, such as the New Kingdom, we have cities like Luxor with an estimated population of around 85,000 people and maybe 100,000 inhabitants at Pi-Ramesses during the 19th Dynasty (Butzer 2005). The maximal cities of ancient China exhibit a similar scale, and although they grew progressively larger over time, they generally fall within the norms established for the other complex societies of Afro-Eurasia. For instance, the population estimates for sites like Erlitou (18–30,000 people), Erligang (80–90,000 people) and Anyang (150,000 people) do not show much divergence from what we see in Egypt, the



*Figure 6.1* Map of Eurasia showing the distribution of coinage-using societies by 100 BC. 1 = Carthage, 2 = Chang'an, 3 = Ctesiphon, 4 = Pataliputra, 5 = Rome, 6 = Sardis (Lydia)

Indus or Mesopotamia. Cities certainly increased in number over the Bronze Age, but there is limited evidence to suggest that the maximum size of cities grew much over the same period (Inoue et al. 2015).

However, toward the end of the 1st millennium BC, a second revolutionary leap in urban scale occurred, and the old ceiling of around 125,000 people was decisively breached. For instance, Ptolemaic Alexandria has been estimated to have reached a population of some 300,000 by 200 BC (Scheidel 2004). At the same time, Chang'an, the capital of Han China, had an estimated population of around 200,000. But the new maximum was first set by Rome, which, at its 1st century AD peak, was home to around 1 million people (Holleran 2011: 158; Morris 2013). The scale of Rome is rivaled in later periods by Baghdad under the Abbasids and by the various dynastic capitals of imperial China (e.g. Kaifeng, Hangzhou). But

the greatest cities of Eurasia did not break the 1 million population ceiling until the onset of the Industrial Revolution. Alongside this remarkable jump in urban scale, a number of significant social, political and economic transformations took place, fundamentally altering the basic nature of city life itself. The ancient city of the Bronze Age and the ancient city of Classical Antiquity were, thus, radically different places.

Having (partially) set the stage with this revolution in urban expansion, our aim in this chapter is to discuss a major change in the nature of inequality that took place during the late 1st millennium BC—something we refer to as the origins of oligarchy. We argue that oligarchy represented a new form of inequality, one qualitatively and quantitatively different from anything that preceded it. What is an oligarch? As Winters (2011: 6) discusses, oligarchy is generally understood as “rule by the few,” which is a definition so vague as to be virtually useless for analytical purposes. All rule, if it is worthy of the name, entails the exercise of power by some sort of restricted social group. Instead, Winters (2011) sees oligarchs as dominant minorities who are specifically “empowered by wealth” (xvi). A note of clarification is in order here. Being “empowered by wealth” is not the same as accruing wealth through political office. For example, kings are not empowered by wealth. They *have* wealth; but they are empowered by their office, which gives them the right to determine laws, command armies or commune with the gods (etc.). It follows that a king is not an oligarch because the power that an oligarch wields flows primarily from their control of private wealth. Oligarchical power is therefore informal, in the sense that they primarily pay people to do things, rather than command obedience by virtue of holding some public office.

A second, no less important, facet of oligarchy is the extreme scale of the wealth involved. The mere existence of private fortunes is not enough; oligarchic wealth must be so immense as to structurally alter the political economy of the society that hosts it. Oligarchs, as a product of their great wealth, thus begin to wield power on a level that rivals the institutions of the state itself. We can, therefore, identify emergent oligarchy in cases where private individuals engage in activities that would once have been monopolized by the state. An example of such would be the ability to raise private armies. In the Bronze Age, armies were a prerogative of kings or similar citadel elites, but this ceased to be true for later time periods. For instance, the wealthy Roman citizen, Marcus Licinius Crassus, is reported to have said that no man could account himself rich unless he could field an army from his own purse (Plut. *Crass.* 7). In the Middle Ages, institutions of higher education normally relied on monarchical or church patronage; however, in the 1800s, many oligarchs in the United States were active in founding new universities (e.g. Stanford, Carnegie Mellon, Chicago and Vanderbilt). Perhaps the most recent example of oligarchs assuming what had formerly been a state monopoly is seen with space travel. In the 20th century, only governments sent people into orbit, whereas, in the 21st century, we now see privately funded space missions as well. Exactly how much wealth is sufficient to count as oligarchical is open to debate (and would depend on the society in question). But, in modern capitalist societies, many billions of dollars, rather than millions, seems to be the requisite qualification

for oligarchical status.<sup>1</sup> We want to stress this magnitudinal aspect of oligarchy, since it is vital to our argument. Merely being rich does not make you an oligarch—it requires wealth so extreme that it rivals that of the state.

When and how did oligarchs first come about? In what follows, we put forward several major propositions. First, in a number of core regions of Eurasia, the upper limits of wealth inequality after ca. 300 BC were much more pronounced than in the Bronze Age, *by several orders of magnitude*. This substantial leap in inequality demands some kind of explanation—especially when we consider that many of the traditional socioeconomic pillars of inequality (the state, monarchy, urbanism, craft specialization, intensified agriculture, etc.) were already in place long before this point. Our second proposition is that the absolute wealth disparities that were newly attained in the late 1st millennium BC were broadly similar to those of the modern era (i.e. post- AD 1500). Put another way, the wealthiest individuals in the most unequal polities of antiquity held personal fortunes comparable to those of modern billionaires (when appropriately adjusted). But this was *not* the case for the preceding Bronze Age. So, despite the clear upward trend in inequality across the globe today, industrial capitalism has not substantially raised the individual ceiling of wealth inequality, and with respect to the scale of permissible wealth differentials, we continue to live within limits that were set during the first few centuries BC. There are, of course, many more billionaires today than existed in the ancient world, but the scale of individual fortunes remains broadly similar.

Third, oligarchy was effectively non-existent in the Bronze Age. This point may immediately raise some hackles, so we again must stress that oligarchy is not the mere existence of rich people. There were certainly wealthy private households in many Bronze Age societies. However, per our structural definition, only wealth so extreme that it rivals that of the state qualifies as oligarchical. As discussed in the previous chapter, no private household of the Bronze Age ever approached the level of wealth controlled by the institutional households of the temples and monarchies. Moreover, private wealth, to the extent that it existed, was generally derived from stipends and sinecures that were *ex officio* grants. As discussed in Chapter 5, there was little prospect of wealth accumulation that was entirely independent of holding some office or affiliation with the royal court, temple, or traditional local institutions. During the 1st millennium BC, however, all this began to change, and truly oligarchical wealth emerged for the first time in several parts of Eurasia. This oligarchic wealth owed its origins largely to financial speculation. Whereas Bronze Age elites

1 The terms ‘oligarchy’ and ‘plutocracy’ are often used interchangeably. We prefer to reserve the term ‘plutocracy’ for societies where access to political power directly depends on wealth qualifications. Examples would include the Roman Senate, which had a minimum property qualification (under Augustus) of a million sesterces (HS) or the wealth-based restrictions to the electoral franchise found in most Western democracies until the late 1800s. In societies where the cost of participating in elections is extremely high, there is, arguably, a degree of *de facto* plutocracy. In the US, the estimated cost of a modern presidential campaign is US\$1 billion, while a senatorial campaign typically requires at least US\$10.4 million (Kuhner 2015). Of course, plutocracy and oligarchy can and frequently do co-occur in the same society.

generally sought to capture ever-greater shares of agrarian output or increase its productivity through injections of labor and material resources, it became increasingly common for post-Bronze Age elites to attempt to profit from rapid price fluctuations in highly volatile commodity markets. As we shall argue, real estate speculation in urban contexts was likely a basis for the earliest forms of oligarchical wealth.

### Bronze Age versus post-Bronze Age wealth ratios

We will shortly offer some substantiation for our claim that there was a massive and unprecedented increase in wealth inequality in certain post-Bronze Age contexts. But before doing so, it is worth noting that our methodological stance is different from several recent archaeological studies, especially those that appear in *Ten Thousand Years of Inequality*, edited by Kohler, Smith and their colleagues (2017; Kohler and Smith 2018). A number of authors in this volume seek to establish universal indices and proxies for describing wealth inequality in past societies. Specifically, their universal index of inequality is the Gini coefficient, with house-size serving as the main archaeological proxy. Although we find much value in this work, for our purposes, their use of house-derived Gini coefficients faces some fundamental limitations. For example, if one is specifically seeking to detect oligarchy (or its absence), it is unlikely to be captured in house-size variability. Only a minuscule fraction of the wealth of any given billionaire is materialized in their primary residence. Of course, a billionaire could have an entire portfolio of real estate assets, but then ownership of multiple homes is invisible within a Gini coefficient derived from house sizes. And, indeed, it is exceptionally challenging to detect the existence of separate structures without textual data. While it is a reasonable generalization that house size increases with wealth, it is far from clear that house size increases *in direct proportion* to wealth. In other words, the average billionaire is unlikely to live in a residence a thousand times bigger than the average millionaire.

We therefore discuss inequality mainly in absolute terms, focusing on the maximum levels of wealth divergence permitted in a society. Specifically, we are interested in the material wealth of the uppermost stratum, expressed as a multiple of basic or subsistence-level incomes. So, a ratio of 100:1 would mean that the richest household in a given society controls wealth equivalent to 100 subsistence-level households. Our metric is similar to looking at the ratio between the compensation of the highest paid employee in a company (i.e. the CEO) and comparing it with the median worker's salary (e.g. Bell and Van Reenen 2013). This approach does not take into account how incomes varied across all socioeconomic strata, nor indicate how much wealth was accumulated within each income percentile. In general, such analyses would exceed the available data, especially for the Bronze Age contexts in which we are interested.

Following our previous discussion, it is also important to emphasize that our concern here is exclusively with the scale of *private wealth*. Our ratios do not therefore consider the wealth attributed to monarchs—or held by public institutions, like temples. This is necessary because the patrimony of someone like a king is not in any meaningful sense private, since it is *ex officio* by definition, and often,

indistinguishable from the total assets of the state itself. In many ancient monarchies, the ruler (as the personification of the state) was understood to own everything that exists, at least in theory. We do, however, include patrimony granted to high-ranking officials in temples or royal courts, if this can clearly be distinguished from the overall wealth of the institution. That said, what is meant by the somewhat anachronistic terms public and private is not straightforward, as detailed in Chapter 5. In particular, our modern moral separation of the two spheres, which, when conflated, we deem ‘corruption,’ is not generally applicable to the ancient world (Garfinkle 2005). Moreover, the concept of private property is often assumed to imply something comparable to the specific forms it takes under modern capitalism. In other words, property that is alienable (i.e. can be bought and sold by any legal personality), heritable (i.e. does not expire with the death of the original owner) and disposable (i.e. the owner can do anything they wish to it, up to and including its destruction). But the degree to which these three features are actually associated with private property rights varies greatly in time and space. Still, it is easy to let ideological nuances obscure reality here. For instance, even modern capitalist societies like the United Kingdom lack a *de jure* concept of privately owned land, despite clearly having such a thing in practice.<sup>2</sup>

In this chapter, we therefore understand private property in the broad anthropological sense as “exclusive rights to things” (Earle 2000: 40), where such rights are not held in common (e.g. by an entire village) but by a single non-institutional (sensu Garfinkle 2005) household. Factors such as heritability, alienability and disposability might be present, but not necessarily. Ownership rights might also be contingent, in the sense that they remain in the perpetual gift of some institutional authority. But, as we noted in Chapter 1, regardless of whether the ultimate owner of an agricultural estate was understood to be a monarch or temple, if someone was enjoying sole rights to dispose of the land’s products, then we might say they were its *de facto* owner. To insist on a strictly capitalist conception of private property would severely limit our capacity to engage in comparative and historical analysis of wealth inequalities.

Our data are derived from a review of summative accounts on the scale of private wealth in different early contexts, as provided in ancient written sources. There are two kinds of measurements considered, the first of which is agrarian wealth, generally expressed in areas of land (see Table 6.1). For this landed wealth, different kinds of sources are used, meaning it is not always possible to be sure that they refer to the *total* wealth held by particular households. Tomb biographies or inheritance documents are more likely to summarize the complete patrimony of a particular person or family, whereas sale contracts or donations are, presumably, only capturing a fraction of such. We accept this as an inherent limitation of the

2 In England and Wales, the most common form of *de facto* private ownership of land is called ‘freehold’; however, this is legally defined as an ‘estate in land’ that is held ‘of the Crown.’ The Crown (i.e. the state, not the monarch) is therefore the absolute owner of all land, albeit only in a strictly theoretical sense.

data. But, because the scale of the largest land transfers tells us something useful about the extent of private land ownership, we consider it to be worthy of inclusion anyway. However, in deriving wealth ratios, we have not used the absolute size of the agrarian landholdings but multiples of subsistence plots for a typical 'local' household. This is a necessary adjustment because land productivity is highly variable across the different ecological contexts covered. For the rich alluvial soils of Nilotic Egypt, a generic subsistence holding is estimated to have been around 5 *arourae* (1.34 hectares) (Katary 2012: 9). For the dry farming regions of northern Mesopotamia, an average subsistence plot is set at 1 *bûr* (6.48 hectares) following Renger (1995: 275). According to Koliński and Stepniowski (2003: 101), agricultural production in the irrigated alluvial plain of southern Mesopotamia was up to four times as productive per unit of area. We have therefore used a generic figure of 1.62 hectares for a typical subsistence plot in the south. According to Ebrey (1986: 624), a subsistence farmstead in Han China was around 2.8 hectares, which accords reasonably well (in terms of the caloric needs of a family) with the expectation that, during the Han Dynasty, a hectare would typically yield around 400–600 kilograms of millet annually (Bray 1979: 10).<sup>3</sup>

Of course, these subsistence plot estimates could be debated, and one could easily make a case for revising them upwards or downwards in each case. But, as we will see, doing so would make little difference to our final analysis, since the changes in wealth inequality we are dealing with encompass multiple orders-of-magnitude. Even if we halved or doubled the estimated subsistence plot for, say, southern Mesopotamia, it would have little impact on the general picture that emerges—the scale of change is simply too great. We should also note that the quantity of historical data available from the past two millennia is much greater. In order to indicate the maximum scale of agrarian wealth during more recent time periods, we have also included the largest known estates from Han China, Byzantium and colonial North America (Table 6.1). This offers a useful contextualization of the earlier periods, thus allowing us to analyze agrarian wealth over a 5,000-year timeframe.

The second group of cases deals with accounts of non-agrarian wealth (see Table 6.2). For these (usually later) contexts, we should note that the *comparanda* themselves have changed, insofar as they are now accumulated fortunes, rather than income-generating landholdings. This is not so much a change in our method as it is a change in the phenomenon being analyzed. Whereas cuneiform and papyrus documents of the Bronze Age almost invariably describe wealth in terms of landholdings of a particular size, the documents from later time periods often refer to lifetime accumulated fortunes, measured in either bullion or coin. How, then, to compare wealth measured in terms of land with wealth measured in terms of metal?

3 By breaking down Mesopotamia, Egypt and China into four basic agricultural zones, we are, for analytical purposes, engaging in a gross simplification. However, since contextual information about the quality of individual landholdings is usually absent in ancient documents, there is little point using typological distinctions that exceed the precision of the data itself.



Table 6.1 Maximum accumulations of private agrarian wealth.

<i>Individual</i>	<i>Cultural Context</i>	<i>Document Type</i>	<i>Total Area</i>	<i>Subsistence Adjustment</i>	<i>Wealth Ratio</i>	<i>Reference</i>
Lugalanda	Lagash, Predynastic	Admin.	209	1.62	129:1	(Steinkeller 1999: 295)
Shagshag	Lagash, Predynastic	Admin.	324	1.62	200:1	(Steinkeller 1999: 295)
Metjen	Egypt, 4th Dynasty	Tomb Bio.	71	1.34	53:1	(Katary 2012: 4)
Ibi	Egypt, 6th Dynasty	Tomb Bio.	54	1.34	41:1	(Moreno García 2013: 4)
Unnamed	Mesopotamia, Ur III Umma	Admin.	381	1.62	235:1	(Adams 2008: 12)
Tehip-tilla	Mesopotamia, Hurrian Nuzi	Land Sale	2000	6.48	309:1	(Zaccagnini 1999: 341)
Amenhotep	Egypt, 18th Dynasty	Donation	115	1.34	85:1	(Moreno García 2013: 4)
Unspecified	Mesopotamia, Kassite	Land Grant	1000	1.62	617:1	(Renger 1995: 303)
Iuwelot	Egypt, 22nd Dynasty	Land Sale	149	1.34	111:1	(Katary 2012: 12)
Atar-il	Mesopotamia, Neo-Assyrian	Land Sale	500	1.62	309:1	(Zaccagnini 1999: 341)
Haltiki	Mesopotamia, Neo-Babylonian	Land Sale	360	1.62	222:1	(Bruschweiler 1989: 158)
Nabu-sharru-usur	Mesopotamia, Neo-Assyrian	Land Grant	1700	1.62	1,049:1	(Parker 2012: 869)
Peftuaneith	Egypt, 26th Dynasty	Donation	267	1.34	200:1	(Moreno García 2013: 7)
Nitocris	Egypt, 26th Dynasty	Land Grant	1096	1.34	669:1	(Katary 2012: 14)
Apollonius	Egypt, Ptolemaic	Land Grant	2671	1.34	2,000:1	(Katary 2012: 17)
Yin Shih	Han China (1st Century AD)	Estate Size	3237	2.8	1,156:1	(Ebrey 1986: 624)
Flavius Apion	Egypt, Byzantine	Estate Size	6677	1.34	5,000:1	(Harper 2015: 51)
Simon Clarke	Colonial Jamaica	Estate Value	£500k	£35 p.a.	1,429:1	(Burnard 2010: 191)

Here, we have opted to represent metallic fortunes in terms of the number of basic salaries that could be paid without depleting the original sum, assuming a typical annual growth rate of 10%. For the Roman Empire during the early 1st century AD, based on data provided in Rathbone (2009), we have used an annual income of HS 1,400 as a subsistence minimum for a nuclear family.<sup>4</sup> For Han China, we have used the data analyzed by Bielenstein (1980: 125–127) to determine a basic household income for the early Han Dynasty as 8,820<sup>5</sup> cash per annum. Taking into account inflation in grain prices (Bielenstein 1980: 125–127), the same figure for later Han is taken as 12,600 cash. For Renaissance Germany, we use Van Zanden's (1999: 181) estimates of unskilled wages in the early 1500s, which puts a subsistence household income at around 800 grams of silver per annum. For the United States in the 1930s, we set an annual subsistence income as US\$775 (i.e. 150% of the federal minimum wage).

Figure 6.2 graphically illustrates the data presented in Tables 6.1 and 6.2. Circular areas are directly proportional to the wealth inequality ratios for each of the case studies we examined. As the graphic shows, there is, broadly speaking, a basic similarity between the maximum (adjusted) sizes of private wealth in both Egypt and Mesopotamia throughout the entire Bronze Age—with all the ratios lying somewhere between 40:1 and 650:1. By contrast, the largest Iron Age agricultural estates of Egypt (during the 26th Dynasty and under the Ptolemies) and Neo-Assyrian Mesopotamia are significantly greater than their Bronze Age precursors. For example, the largest Ptolemaic estates (with a wealth ratio of 2000:1) were land grants awarded to high-ranking Greek soldiers. This would suggest a long-term trend toward the consolidation of larger tracts of land in the ruling elites. Violent dispossession of people from their land is a common characteristic of colonialism, which may, in turn, facilitate the creation of much larger agricultural holdings. In other words, it is easier for a foreign elite to confiscate land than an indigenous elite, since the latter is usually more socially embedded within the native population. This may, in part, explain why the largest Ptolemaic estates achieved a substantially greater scale than their counterparts from the earlier Bronze Age phases of Egyptian history.

But, despite the modest growth in agrarian fortunes after the Bronze Age, the explosive growth in non-agrarian fortunes far outpaces it. From the Iron Age onwards, non-agrarian wealth ratios reached 20,000:1 or even greater; approaching two orders of magnitude beyond what was typical for the early Bronze Age monarchies. Substantial fortunes that have a basis in agrarianism continued to exist up until the modern era, of course, but, as a rule, they were considerably outclassed by non-agrarian wealth. For example, the richest plantation owners of the colonial Americas had adjusted landholdings comparable to those of Han China—and considerably smaller than the greatest estates of Ptolemaic and Byzantine Egypt.

4 The abbreviation HS refers to *sesterces*, a basic Roman currency denomination.

5 The English term 'cash' refers to the *wūzhū*, the basic bronze coin denomination under the Han Dynasty.

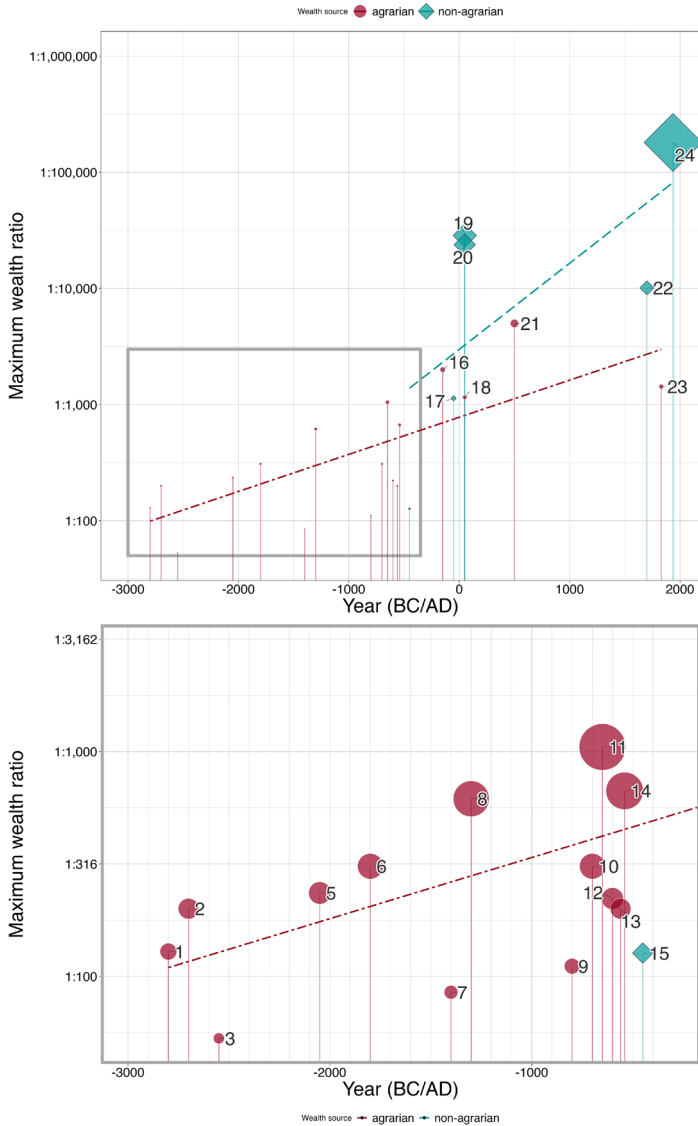


Figure 6.2 Chronological representation of changing maximum accumulated private wealth inequality ratios (y-axis on logarithmic scale, ratios also depicted as relative lollipop circle size) from 3000 BC to 2000 AD (top) and zoomed in 3000 BC to 200 BC (bottom). Sources of wealth indicated (agrarian = circles with dashed lines and non-agrarian = diamonds with dashed lines), and example individuals labeled (see also Tables 6.1 and 6.2 for details and references). 1 = Lugalanda (Lagash), 2 = Shagshag (Lagash), 3 = Metjen (Egypt), 4 = Ibi (Egypt), 5 = unnamed (Umma, Mesop.), 6 = Tehip-tilla (Nuzi, Mesop.), 7 = Amenhotep (Egypt), 8 = unspecified (Mesopotamia), 9 = Iuwelot (Egypt), 10 = Atar-il (Mesopotamia), 11 = Nabu-sharru-usur (Mesopotamia), 12 = Haltiki (Mesopotamia), 13 = Peftuaneith (Egypt), 14 = Nitocris (Egypt), 15 = Egibi Family (Neo-Assyrian Babylon), 16 = Apollonius (Egypt), 17 = Fan Li (Early Han China), 18 = Yin Shih (Han China), 19 = Tiberius Claudius Narcissus (Roman Empire), 20 = Liang Ji (Later Han China), 21 = Flavius Apion (Egypt), 22 = Jakob Fugger (Renaissance Germany), 23 = Simon Clarke (Colonial Jamaica), 24 = J D Rockefeller (American Republic)

Table 6.2 Maximum accumulations of private non-agrarian wealth.

<i>Context</i>	<i>Date</i>	<i>Total Fortune</i>	<i>Subsistence Adjustment</i>	<i>Wealth Ratio</i>	<i>Reference</i>
Neo-Babylonian	ca. 5th century BC	2,296 shekels* p.a.	18 shekels** p.a.	127:1	(Dandamayev 1999: 374)
Roman Empire	ca. 1st century AD	HS 400 million	HS 1,400 p.a.	28,571:1	(Duncan-Jones 1982: 343–344)
Early Han China	ca. 1st century BC	100 million cash	8,820 cash p.a.	1,134:1	(Sima 1993: 438–451)
Later Han China	ca. 1st century AD	3 billion cash	12,600 cash p.a.	23,809: 1	(Scheidel 2016: 8)
Renaissance Germany	ca. AD 1700	2,021,202 gulden†	66g gold p.a.	10,106:1	(Häberlein 2012)
American Republic	AD 1937	US\$ 1.4 billion	US\$ 775 p.a.	180,645:1	–

\* This figure is based on the non-agrarian wealth attributed to the Egibi family in Dandamayev (1999: 374), based on the mean values for slaves and house leases given in (Hackl and Pirngruber 2014) for the same period and using the standard interest return on silver loans of 20% *per annum*.

\*\* A standard monthly income for an unskilled laborer is estimated to have been one shekel of silver (Hackl and Pirngruber 2014: 122).

† A guilder was a common German variant on the coinages of Renaissance Europe, elsewhere called florins and ducats; typically, 3.3 grams of gold.

Finally, although it is clear that the wealth ceiling has grown over the past two millennia, all the maximum fortunes were of a roughly similar scale. The wealth of J. D. Rockefeller, probably the peak of inequality in human history, is something of an outlier in the context of modern capitalism. The 21st century tech-billionaires, like Zuckerberg, Gates and Bezos, have fortunes that are roughly a quarter of those belonging to the richest robber barons—and are, thus, broadly equivalent to their predecessors from the Han and Roman empires. In other words, we see no further order-of-magnitude shifts after the 1st century AD. This underscores our claim that the upper limits of socioeconomic inequality have not substantially grown since the late 1st millennium BC.

### **The birth of real estate speculation in ancient cities**

In the terminal centuries of the Roman Republic, there was a massive and rapid expansion in the maximum scale of private wealth. An extreme fortune in 205 BC was in excess of HS 5 million, whereas, by 131 BC, it had increased fivefold to HS 25 million. By 71 BC, it had become as high as HS 100 million (Scheidel 2016: 10–11). This growth in inequality seems to have been largely driven by the Roman war machine, where the wealth of the newly emerging super-rich was generally derived from foreign plunder and land grabs from neighboring societies. Here, it is interesting to consider the quite different case of Marcus Licinius Crassus (115–53 BC), a consul and prominent military figure in the Roman Republic during the early 1st century BC. Crassus is the earliest known case of extreme inequality at levels comparable to modern billionaires. For instance, Pliny the Elder (*N.H.* 33.134) placed Crassus' total wealth at HS 200 million. Unlike many of his predecessors and contemporaries, Crassus did not become wealthy through war; his final military expedition to Parthia was a disaster and led to his death. Earlier in his career, he had somewhat more success with the Third Servile War, although the resulting prestige was disputed with Pompey Magnus. But, the Third Servile War was a civil conflict, taking place in Italy itself, and thus, did not lend itself to wealth acquisition through plunder. Crassus therefore had to turn to other means to obtain his vast riches.

As a starting point, we should consider that a primary source of Crassus' wealth was rent. But not necessarily agricultural rents obtained from tenant farmers, despite the fact that this was a major source of income among ordinary Roman elites. Indeed, Crassus seems to have been quite innovative in his rent-seeking practices, since, according to Plutarch (*Crass.* 2–4), he invested heavily in *urban* real estate within the city of Rome itself. Like a prototypical disaster capitalist (*sensu* Klein 2007), he apparently bought up large blocks of residential property in Rome that were damaged or destroyed, either in fires or during the civil wars initiated by Sulla. He also, apparently, maintained a cadre of some 500 enslaved masons and architects so as to reconstruct these cheaply acquired properties, which he then re-sold or rented out at exorbitant rates (Plut. *Crass.* 4). Plutarch suggests that, through such practices, “the largest part of Rome came into his possession” (*Crass.* 4 trans. by Bernadotte Perrin). It would be fascinating—albeit now impossible—to know just what percentage of Crassus' fortune was truly derived from urban real

estate, rather than the more traditional sources of aristocratic wealth like the rural *latifundia*.<sup>6</sup> But, what we find particularly striking about him is that he represents the first described case of what we would now call a property tycoon.

What sets Crassus apart, here, from many other ancient elites is that he, apparently, engaged in real estate speculation. In the political parlance of today, some would say Crassus was an entrepreneur; but in truth, he was a rentier (sensu Maz-zucato 2013, 2018). He engaged in a form of predatory speculation, in as much as the real risks were socialized and the profits privatized. Within economics, speculation is a particular kind of activity and should not be confused with investment. It is also distinct from the basic logic of market exchange, or buying a commodity at a lower price than one intends to sell it. According to one classic definition, “What distinguishes speculative purchases and sales from other kinds . . . is an expectation of an impending change in the ruling market price as the sole motive of action” (Kaldor 1939: 1). The key difference, then, is that an investor seeks to profit from returns on the resources or labor they will inject into a venture, whereas a speculator seeks to profit from a booming market that exists *independently* of their actions. These are idealized distinctions, of course; in reality, many individuals will practice investment and speculation at the same time. Speculation is predicated on the existence of a market, but market exchange, itself, does not automatically imply speculation. Speculation only occurs where commodity prices are subject to considerable upswings in value. In principle, one could speculate on almost any commodity (e.g. tulips), but historically, certain goods are much more prone to speculative activity (e.g. real estate).

Was speculation in urban real estate possible in the Bronze Age? We would suggest not. Or, at the very least, it was only possible to a negligible degree. One major difference was simply the absolute scale of urban settlements. As we have already discussed, the largest Iron Age cities had estimated populations approaching a million persons, and even second-tier settlements like Roman Alexandria had a population of around 500,000 (Hanson and Ortman 2017: 301), which would have dwarfed even the largest cities of the Bronze Age. Put in simple terms, typical Bronze Age cities were not large enough for significant quantities of rent to be extracted from them. And this assumes that there were even large numbers of people who actually rented residential property in those Bronze Age cities, which, as we will see, may not have been the case. To be clear, it is not demographic growth *per se* that drove such unprecedented increases in inequality. Indeed, for earlier time periods, rapid urban expansion was normally correlated with relative socio-economic egalitarianism. Yet, in the context of classical urbanism, we are dealing

6 The historical record indicates that Crassus had multiple sources of wealth, including urban real estate, slaves, agricultural land (i.e. *latifundia*) and silver mines. But the information given in such sources is ambiguous and often contradictory; for a detailed breakdown of Crassus’ fortune and a discussion of the relevant historiographical complexities, see Pugh (1981: 232–242). In this article, we assume that Plutarch’s account is broadly accurate (albeit, likely exaggerated). In other words, we assume that Crassus derived a substantial fraction of his wealth from urban real estate and that this was considered unusual for his day.

with something quite new: the emergence of real estate speculation on a large scale. It is this profound transformation in the political economy of the ancient city that—over time—permits the demographic expansions of the Second Urban Revolution to underwrite massively increased wealth stratification.

Following on from this last point, it seems the Bronze Age city was also a rather different kind of place in terms of its socioeconomic structure. In ancient Mesopotamia—the context for which we have by far the richest textual record—the buying and selling of urban land was not unusual in itself. But these exchanges mostly took place between the owners of adjacent houses, so that expansions or renovations could be carried out, and thus, entailed transfers of very small plots (sometimes no more than a few square meters). As Van de Mieroop (van de Mieroop 1997: 274) discusses, there was no market in real estate in ancient Babylonia in anything like the modern (or Roman) sense. Land prices, in particular, were primarily set by the nature of the social relationship between the two parties to the transaction and did not, therefore, represent a market value as we would understand it. Of related interest is the question of leasing (rather than owning) real estate. Surviving written contracts indicate that private leasing of agricultural land was relatively rare in Mesopotamia until after ca. 2100 BC, at which point it became increasingly common (Leemans 1975; Oers 2013). With respect to urban leasing, there are enough contracts for house rentals from the Old Babylonian Period to suggest it was a fairly unremarkable practice (Farber 1978: 16), although the evidence is more abundant for Iron Age Mesopotamia, such as during the Neo-Babylonian period (e.g. Zawadski 2018). But even during later periods, leasing out urban properties was not a particularly common way for Mesopotamian elites to acquire wealth (Jursa 2010: 169–172). For instance, one wealthy family from Babylon, the Egibi, owned a total of 16 houses—a very modest real estate portfolio by modern standards.

The spatial structure of households in the cities of Bronze Age Mesopotamia is also telling. One of the most consistent patterns in such cities is the lack of neighborhoods differentiated by class (Stone 2007: 216–217). Instead, large courtyard houses are found everywhere, with smaller households nestled between them. This implies that the urban poor and the urban rich lived in close proximity to each other and were highly integrated economically and socially. For us, this also suggests that the urban lower classes were largely dependents of the urban elites, serving them either as clients, salaried staff or indentured laborers. It is also important that smaller houses were generally created by the subdivision of larger houses, while large houses were often created from the amalgamation of smaller ones (Stone 2007: 217–219). Significantly, then, virtually no housing was purpose-built for either the urban poor or the urban rich. As an analogous case, consider the typical aristocratic household in Victorian Britain. Such households normally maintained a large country estate as well as one or more townhouses in a major city. All these houses would have required an extensive staff of butlers, housekeepers, footmen, maids, valets, cooks and gardeners. From the perspective of the household, all these in-residence servants were paid wages, and thus, a *drain* on the household income. By contrast, the rural agricultural tenants were the household's primary

source of wealth, since they were required to pay rent in order to access the land they farmed. Urban servants were, thus, an outlay, whereas rural tenants were a source of income. Much the same was likely true for Mesopotamia during the Bronze Age.

When, in history, did the urban lower classes cease to be a cost for elites, and instead, become a source of income? Put another way, when did the urban poor shift from being salaried dependents, and instead, become, like their rural counterparts, lessees? Whereas Bronze Age cities were predominantly populated by owner-occupiers, large Roman cities were mainly occupied by apartment-dwellers who rented residential spaces (*cenacula*) from the wealthy individuals who owned the various *insulae* (city blocks) (Frier 1977). From at least the 2nd century BC, the city of Rome had a well-established, and increasingly, booming rental market in low-quality, cramped accommodation (Craver 2010). The modern norm, where large cities are mostly comprised of leased apartments rather than owner-occupied houses, is, therefore, an innovation of the 1st millennium BC and probably did not exist anywhere in the Bronze Age. Spatially, this shift is represented in the emergence of urban neighborhoods with a distinctive class character.

But why is the emergence of urban real estate as a new source of wealth so significant? What makes the growth of urban landlordism so different from its much more ancient rural counterpart? First, it is important to recognize that urban land, and residential property in particular, has become much more valuable than its rural counterpart. Today, for example, approximately 58% of the net wealth of the United Kingdom exists in the form of housing, while the relative value of agricultural land has become negligible (Ryan-Collins et al. 2017: 170–171). Simply put, the potential value that can be realized through urban land is almost always much greater than agricultural land. This is not to imply that, in an ancient context like the Roman Empire, urban land ever eclipsed agricultural land as the primary basis of wealth for society *as a whole*. In England, the value of rented buildings (mostly for residential purposes) first overtook the value of agricultural rents during the 1850s (Offer 1980), some time after the onset of the Industrial Revolution. We therefore assume that, in pre-industrial contexts, the total value of agricultural land is virtually always higher than the total value of urban land. But absolute values and the distribution of wealth are quite different issues. In other words, the total value of all urban land in the Roman Empire was much less than the total value of all agricultural land—but urban land was potentially concentrated in far fewer hands. Someone might realistically aspire to owning the greatest part of Rome but not the greatest part of Italy.

So, just how much was the urban rental market in Rome worth? Documents indicate that typical annual rents for the lowest-status denizens of Rome were in the vicinity of HS 500 (Frier 1977: 34). Also, Julius Caesar, in 48 BC, enacted a remission of rents in the city of Rome for properties costing up to HS 2,000 *per annum* (Craver 2010). Obviously intended as a populist move, the remission ceiling he chose must have covered the majority of the urban population. Given these two figures, we might guesstimate a mean annual rent in the vicinity of HS 1,000. Excluding slaves and the propertied elites (neither of whom rented), an estimated



500,000 free inhabitants must have lived in rented accommodation toward the end of the 1st century BC. If we assume a mean household size of five persons (per rented space), this would lead to an estimate of 100,000 rent-paying households in the city. If the typical rental value were to have been HS 1,000, the Roman market would, thus, have generated a gross revenue of approximately HS 100 million per annum. However, this is only a partial estimate, since it does not include commercial rents (e.g. from shops and taverns), which must also have been very substantial. Monopolizing even a fraction of this revenue would clearly have led to the accumulation of very extreme wealth in a short span of time.

It is difficult to know what the outlays would have been for a real estate speculator like Crassus, especially given that the building works were carried out by slaves rather than wage laborers. However, after the initial purchase and construction costs, it is difficult to imagine Roman landlords spending much money on the maintenance of their rental portfolio. The historical record makes it clear that the *insulae* were frequently crowded, dirty and prone to collapses, due to unsafe building practices. We are undoubtedly talking about living environments that the modern observer would equate with the slums of the early Industrial Age (Yavetz 1958). In any event, such a revenue stream is not trivial and could easily have accounted for a substantial share of Crassus' fortune when compounded over a number of years. This is precisely why Crassus' speculations on residential property within Rome should probably be considered a potential watershed in human inequality—the beginnings of a fundamental change in the nature of landed wealth itself.

### **Why are urban and rural forms of real estate so different?**

In the ancient world, the value of land was generally derived from the direct or indirect appropriation of its agricultural products. Thus, for the most part, elite wealth, insofar as it was vested in landed estates, was built on the appropriation of surplus crops. By definition, then, the wealth captured via agrarian estates cannot exceed the productivity of the land itself, minus the subsistence needs of the humans and animals who actually do the work. If you seek to charge your tenants more in rent than the total value of the surplus commodities produced by the land, they will inevitably default—and no other tenant can replace them, since nobody can make a field generate crops in excess of its biophysical limits. But, as David Harvey (1974: 249) points out, in urban contexts, the level of rent is often decoupled from the productivity of the land itself.

In most discussions of rent in traditional economic theory (e.g. Smith, Ricardo, Marx), it is assumed that agricultural land is the hypothetical context in which to think through one's abstract concepts and their implications. Thus, theories of rent have seldom addressed the issue of urbanism separately. However, Harvey (1974) has shown that urbanism generates some profound contradictions with respect to economic theory. In particular, urbanism blurs the distinction between land and capital as well as between rent and profit (Harvey 1974: 241). Ricardo thought that absolute rent (i.e. the extraction of rent equivalent to a tenant's maximum sustainable limit) was, basically, impossible. It could only occur on some hypothetical

island where all the agricultural land was already occupied, thus leading to a condition of total scarcity. Yet, as Harvey discusses, modern cities approximate this condition, and are, “in effect, a series of man-made islands on which class monopolies produce absolute scarcities” (Harvey 1974: 249). So, productivity and rents are not related for urban land the same way they are for agricultural land. But perhaps, even this does not go far enough. In urbanism, the land, especially that portion given over to residential use, often has no productivity at all. Of course, we are using the term productivity here purely in terms of *extractive* production. Domestic spaces are certainly productive in a broader social or cultural sense, but not necessarily in a form that generates commodities or that can substantially contribute to wealth inequality.

In tenancy relationships involving agricultural land, the worker subsists on a portion of the agricultural product that they grow, while transferring a second portion (even if indirectly) to the landowner as rent. But for urban real estate given over to residential use, the tenant is not using the land to make a living *per se*. Rather, they acquire wealth through some other means, such as wage labor or mercantile activity, and merely occupy the rented space. This is not wealth extraction that entails the capture of a share of the biological products of the land, but instead, the exploitation of the sheer need for scarce living space. For obvious reasons, this kind of rent-seeking can only become lucrative in a highly urbanized context, where there are large populations jostling for room in a very restricted area. Thus, accruing rents from urban real estate, where the value is derived from the fact that the urban population needs to live in the city and has literally nowhere else to go, is a highly distinctive practice.

Rights over land in a form that resembles private property have long been understood as a basic driver of wealth inequalities. One person—through the socio-legal vehicle of private property—has the right to claim (in part or in whole) the fruits of another’s labor. In its original formulation, the idea of landesque capital was intended to distinguish two avenues of potential investment in the productivity of land (Sen 1959). So landesque capital (e.g. more fertilizer, more irrigation infrastructure) was set against laboresque capital (e.g. more fruit pickers, more cattle drovers). However, in either case, it remains an investment in future *productivity*. As discussed earlier, such investment is not the same as speculation. But some striking inversions occur with regards to the economic rules that govern the economics of urban versus rural land. It is virtually impossible to increase the value of agricultural land by reducing its quality—whereas this is not only possible for urban land; it is actually a very common practice. Consider that, if one were to deprive farmland of improvements, whether through lack of labor or capital, then its productivity, and so value, must inevitably suffer.

However, one can degrade urban residential spaces by introducing further subdivisions, so as to make smaller and smaller rental units. The rented spaces have become poorer (i.e. more cramped and lacking in amenities), but you can now rent them out to more families, thereby increasing one’s overall returns per unit area. Indeed, in a booming (i.e. speculative) urban real estate market, one can allow residential properties to decay and still be confident of increased productivity—the

only limiting factor being tenant demand itself. We call the people who profit in this way slumlords. Yet this only highlights how productivity is not really the same thing with respect to urban versus rural land. In rural contexts, productivity is a capacity to generate more stuff that is ultimately a biophysical output of the land itself, and one cannot ever escape that basic material tether. In (residential) urban contexts, productivity is, instead, the legally sanctioned capacity to capture the labor of people who require living space but who make their actual living elsewhere. This reliance on the maintenance of scarcity (rather than increases in biophysical productivity) is precisely how slumlords become rich *and* why there is no real equivalent to the slumlord for agricultural land. To echo our earlier discussion, such material differences underscore why agricultural land tends to attract investment, whereas urban land is ripe for speculation.<sup>7</sup>

Other physical differences are also immediately obvious when comparing agricultural and urban land. Mark Twain is famously reported to have said, “buy land, they’re not making it anymore.” That is more-or-less true with respect to rural land, but clearly not for urban real estate. Consider just how many times the land area of somewhere like Manhattan has been multiplied through the erection of multi-storey buildings like skyscrapers. For obvious reasons, additional agricultural land cannot be created through this sort of vertical stacking. And here, we also see another reason why urban land is amenable to speculation in a way that cannot ever be true for rural land. A city block made up of residential buildings with six or seven storeys can be knocked down and replaced with a skyscraper with 60-odd storeys, thereby increasing the available land (to be rented) tenfold or more. Thus, the land upon which such a project is likely to occur might be expected to see substantial increases in value prior to its realization. Not only this—adjacent land will also rise in value, since (for example) purveyors of goods and services will soon expect to find themselves in a neighborhood with many more customers. There are certainly anthropogenic impacts on the quality of agricultural land. But the productivity of a field is always heavily dependent on processes that have occurred over geological timescales (e.g. soil formation and hydrological changes). By contrast, a city environment is largely the product of activities that take place over historical timescales (e.g. population movements, infrastructure development or natural disasters). Ultimately, then, urban environments are more dynamic with respect to the factors that affect real estate values. As a consequence, urban land can oscillate wildly in value without any direct injections of capital or labor, making it uniquely amenable to speculation.

It is probably also no coincidence that ancient Rome is the first context in human history where skyscrapers—or rather, multistorey buildings with up to eight floors—became a regular form of residence (Storey 2003). In fact, by the early

7 In saying that agricultural land does not attract as much speculation, there is one obvious exception: agricultural land that is about to be transformed into suburban or urban land. But we would argue that this represents speculation on future urban land, rather than speculation in agricultural land *qua* agricultural land.

empire the vertical expansion of Rome had become so dangerous that Augustus was forced to issue an edict restricting buildings to fewer than 21 meters in height (Yavetz 1958: 507). Why Bronze Age cities exhibited such limited vertical growth in living areas while some later cities shot upwards has seldom been given much consideration—beyond the basic observation that cities like Rome had larger and denser populations. That is true, of course, but we suggest it is also a reflection of profound changes in their socioeconomic structure. Vertical expansion makes perfect sense in a settlement predominantly populated with lessees and where real estate speculation is a major source of wealth among the propertied elites. But vertical expansion has little logic in a settlement where rented accommodation is rare (since low-status urbanites are mostly dependents within elite households) and where speculation is absent because no true real estate market exists (i.e. the typical Bronze Age city). From the perspective of an owner-occupier, houses are a cost and must be maintained. One therefore only wants to own as much living space as is required by yourself and your dependents. But, from the perspective of a lessor, houses provide income, and the more one owns, the greater the revenue stream. If land is itself expensive, then vertical stacking is an obvious way to increase revenues with minimal outlay.

In sum, the elites of the Bronze Age did not build crowded, dirty and dangerous high-rises, for the simple reason that their wealth did not depend on rent extraction from an impoverished urban population. Rural, rather than urban, landlordism sustained the ruling classes of the Bronze Age. Crassus, however, did precisely this, cramming more and more urban families into as little space as possible, so as to maximize his rental returns. It should be noted that this pattern only seems to have applied to the largest Roman cities—such as Ostia, Alexandria and Rome itself. Only these ancient megacities show evidence for the construction of teetering multistorey apartment blocks for the housing of poor urban families. By contrast, smaller cities, like Pompeii, seem to have continued the Bronze Age pattern of one or two-storey dwellings (see Wilson 2011) that were mainly occupied by elites and their dependents.

### **Was monetization a precondition for speculation?**

A major expansion in urban scale was not the only significant structural transformation of the Iron Age; the advent of coinage was another. As we noted in Chapter 4, it is generally agreed that the first coins were minted in western Anatolia by the Kingdom of Lydia sometime around 630 BC (e.g. Schaps 2004; Scheidel 2008; Wallace 1987). Within a century, coinage had also become commonplace among their Greek neighbors (Schaps 2004: 104–106). Beginning in the 330's BC, the conquests of Alexander were a major vector for the spread of coinage across much of the West Asia and Egypt (Meadows 2014), and by 100 BC, coins were also being minted throughout most of temperate Europe (Howgego 2013). The chronology of the earliest South Asian coinage is more controversial. In any event, South Asian coins certainly existed prior to 400 BC and may, ultimately, prove to be of comparable antiquity to the oldest Mediterranean issues (Cribb 2003). In

East Asia, coinage proper was initially developed in the 4th century BC, although it apparently had antecedents in the older utensil monies that took the form of miniature bronze spades and knives (Chen 2013: 641–642). The subsequent rise of the Qin Dynasty in ca. 220 BC led to the widespread adoption of coinage across the entire core territory of ancient China, and it was only entrenched further by successor dynasties. Why coinage was invented in the first place—and the reason for its near simultaneous appearance in South Asia, the Mediterranean and East Asia—are important questions that fall outside the scope of this book. For our purposes, what matters is that, by 100 BC, coin-based transactions had become ubiquitous across vast swathes of Eurasia, encompassing all of its most populous agrarian and urban zones (see Figure 6.1). Given the geographical scale involved, this transformation was remarkably fast, taking no more than five centuries, and in our view, warrants the label revolutionary.

David Graeber (2011) has attributed considerable importance to the revolutionary impact of coinage on the ancient world, and here, we will highlight several of his key arguments. Today, we are accustomed to thinking that coinage is *the* form of money, but it is, in fact, a very distinctive and peculiar variety (Graeber 1996: 11). Throughout much of human history, and certainly across Bronze Age Eurasia, people carried out trade for millennia without any need for coinage. For example, all the merchants we discussed in the preceding chapter were perfectly capable of facilitating their long-distance exchanges without relying on small pieces of stamped metal as the primary medium, store and measure of value. Typically, these exchanges relied on quite elaborate credit arrangements, in which repayments occurred sometime after the initial transfer of goods—in some cases, perhaps, even months or years later. A farmer might borrow her neighbors' oxen to plow a field, with the understanding that she would be expected to reciprocate at some unspecified future date. The precise form the reciprocal exchange took might also be unspecified initially; perhaps help with the harvest or a donation of surplus grain or a nice, new set of wheels for the family cart. Sometimes we do not know what we need until we need it.

According to Graeber (2011), the core social characteristic of all such credit arrangements is that they are built on trust. We can have a productive partnership with our merchant contacts on the other side of the world because we know them, having spent decades forging a network of reliable associates. Consider the case of a merchant from *Meluhha*—the Sumerian name for the Indus region—filling their cargo hold with goods obtained from Mesopotamian sources. The merchant promises to return the following year with carnelian, which his Mesopotamian associates will be able to sell locally at a tidy profit. But why would the Mesopotamians have any confidence that this foreigner, who comes from a faraway land and who speaks in a strange language, will keep his word? What if he just takes their goods and never returns with the promised carnelian? For the ancient merchant, few things were more valuable than a good reputation. Similarly, we trust our neighbors because we have been farming the land next to theirs for as long as we can remember. We know them, we know their family, and thus, feel confident that any debts

will be repaid eventually. Even if they do not want to repay us, the social stigma that would arise from default might be enough in itself to compel reciprocation.

Coinage, however, is completely different. To be precise, coinage works very well in facilitating exchanges between individuals who do not trust each other at all or who expect to have no enduring social relationship beyond a single transaction. Thus, a coin user “need trust nothing other than the accuracy of the scales, the quality of the metal, and the likelihood that someone else will be willing to accept it” (Graeber 2011: 213). Put another way, coinage is the medium of exchange best suited to business dealings among *strangers*. And, the larger the city, the more strangers one is likely to meet—lots of potential customers, to be sure, but equally, lots of walking credit risks.

Following on from these arguments, it is clear why the establishment of a coin-based economy may also have been a precondition for the emergence of urban real estate markets dominated by rent extraction. Our knowledge of the conditions of ancient rental leases is very limited. However, there is evidence that higher-status individuals could expect more elaborate credit arrangements, with their accounts commonly being settled on an annual basis. Being able to pay annually is indicative of high levels of trust between the different parties—of the sort that often exists between socially well-integrated elites. But the poorer masses, like their modern industrial counterparts, were probably expected to pay on a weekly basis (Frier 1977: 35). Consider the rental market from the perspective of a wealthy landowner—someone who owns multiple apartment complexes and wishes to lease them to as many tenants as possible. Presumably, there was little difficulty in actually finding potential lessees; Rome was a bustling city, and new immigrants were arriving from the provinces on a daily basis. But how could one trust that the rent would actually be paid? What was to stop your unknown tenant from disappearing just before the rent was due? How would you ever find them again in a city as vast as Rome? Weekly coinage payments could largely obviate this problem—at worst, a defaulting tenant will only cost a week’s rent. On a more pragmatic level, given that these weekly payments would often have been very small (i.e. on the order of HS 10), it is almost impossible to imagine any acceptable vehicle for this other than coins.

As a rule, credit is only extended to those whom one trusts, and even modern residential leases usually mandate payment every month (and in advance). As Graeber (2011: 213) emphasizes, less substantial debts are easier to settle in cash, and one of the advantages of coinage is its ability to facilitate minor transactions where credit arrangements are undesirable. For Graeber, the classic example is seen in the cohorts of Roman soldiers posted to the imperial provinces. For local purveyors of goods and services, highly armed and violence-prone foreigners would have made very unappealing debtors, and thus, coinage would have been an important means of facilitating exchange in these low-trust contexts. Extending this argument, we suggest that coinage would also have been an ideal means for rent transfers from the urban poor to wealthy landlords. In Bronze-Age cities, it seems contracts for house leases were only desirable between individuals

of approximately equal social status—and thus, with correspondingly high levels of trust. But with payment in coin, you can have leasing arrangements that do not depend on the extension of credit over any significant length of time. Thus, in a post-Bronze Age city like Rome, we see leasing between individuals from opposite social strata become the norm.

Tenants on agricultural land can (and often do) make payments in kind, typically at the conclusion of the annual harvest period. In fact, it is difficult for rural tenants to make payments any other way, since agricultural products are often the only form of portable wealth to which they have reliable access. But how would the nearly 100 thousand tenant households in the city of Rome have been able to pay their rent, except in cash? This renting class was not generally engaged in farming, so they would have had few agricultural products to offer anyway, and even if they did, it is difficult to imagine that their urban landlords would have accepted wheat, sheep or chickens as rent payments. The unenslaved urban population of Rome would primarily have been wage laborers (Holleran 2011: 166–170), and as such, coinage was the main medium through which they would have settled their debts.

Unlike Rome, we were unable to locate any evidence for widespread real estate speculation in the case of Han China or its implied material correlates, particularly lower-status multistorey residential buildings. But, in the Chinese case, too, one could argue that coinage was a precondition for unprecedented growth in non-agrarian wealth. In Sima Qian's (1993 [ca. 94 BC]) celebrated history, he provides details on how a number of extremely wealthy families obtained their riches. The five richest families he mentions supposedly had fortunes amounting to some 100 million cash. According to the grand historian, these wealthy families acquired their riches through money-lending and commodity speculation (i.e. buying large quantities of goods while prices are low, then selling when the price rises). For instance, one loan of 1,000 catties of gold is described as bearing an interest rate of 1,000% (Sima 1993: 452), suggesting there were no meaningful limits on usury at the time.

It is worth noting that this loan of 1,000 catties (i.e. 1,000 *jin*, roughly equivalent to 250 kilograms, with a modern bullion value of US\$12.1 million) was granted to help finance a risky, albeit ultimately successful, military venture (1993: 452–453). This is an interesting point because it is difficult to imagine how a private individual could have funded such military action in the absence of a monetized market economy. It is worth quoting at length Graeber's discussion of this issue:

Say a king wishes to support a standing army of fifty thousand men. Under ancient or medieval conditions, feeding such a force was an enormous problem—unless they were on the march, one would need to employ almost as many men and animals just to locate, acquire, and transport the necessary provisions. On the other hand, if one simply hands out coins to the soldiers and then demands that every family in the kingdom was obliged to pay one of those coins back to you, one would, in one blow, turn one's entire national economy into a vast machine for the provisioning of soldiers, since now

every family, in order to get their hands on the coins, must find some way to contribute to the general effort to provide soldiers with things they want.

(Graeber 2011: 68–89)

Military forces are always hungry for resources and maintaining them is a complicated logistical task. In the Bronze Age, it would have been state-like institutions that normally organized large-scale military activities. Specifically, palaces and temples would have been among the only Bronze Age institutions capable of acquiring the necessary resources, particularly the specialized metallurgical products and textiles needed to sustain an army of any size. In the context of the Chinese Bronze Age, at least, we know that ruling elites often took a close interest in craft production. For example, excavations attest to considerable metallurgical activity in association with major Chinese urban centers, such as Erlitou and Erligang, which included the manufacture of weapons (Liu and Xu 2007). Archaeologists (Brumfiel and Earle 1987) often refer to this kind of craft production as being ‘attached’ to elites, meaning that those elites control or sponsor the production of goods to suit their own requirements. Although attached craft specialization often refers to the creation of sumptuary or luxury goods, it also encompasses the specialized materiel needed for warfare. Obviously, it would be a highly embarrassing situation for a ruler to declare war, only to find that there were not enough helmets and spears, nor anyone who knew how to make them. As such, it is hardly surprising that any reasonably diligent warlord would take a close interest in craft production activities, especially those professions that were necessary to equipping the army.

In addition to weapons and clothing, there is also the issue of food. Without an infrastructural framework to directly support subsistence needs, the only way to maintain an army in calories was for it to raid and pillage as it went. Such practices might work for conquests in foreign lands or for short periods, but they would surely have had a prohibitive social cost if deployed closer to home. And, for any kind of standing army, pillaging was clearly not viable. As such, Bronze Age militarism was largely the preserve of rulers because only they had the state-level infrastructure to underwrite substantial military activities. However, in an Iron Age economy, where soldiers are paid in coins, a private individual potentially needs only metal to raise a military force. Markets could supply the necessary food and bulk supplies that, once, would have been furnished by the state apparatus, and salaries would generate the loyalty that a king would otherwise have commanded by right. So, for a creditor, there may have been new ways to seek profit that were directly dependent on the existence of monetized exchange systems.

To be clear, we are not suggesting that financing warfare was fundamentally different in the Bronze Age versus the post-Bronze Age, insofar as it required a lot of expensive stuff in both cases. What *is* different, however, is the ability to engage in warfare without a substantial state military apparatus to back it up. And, above all, it was coinage that made this dramatic shift possible. For kings, this might not have mattered very much—they already have the state’s resources at their command. But for ambitious individuals who were not rulers and who had



the ear of a sympathetic financier, the option now existed to fund wars through a loan and acquire the necessary soldiers and material by simply paying for them with cash. Historical records tell us that, in ancient China, private individuals of means were able to invest in warfare by financing the military activities of political factions and, assuming they prevailed, calling in the loans. In earlier times, the plunder would have been distributed among the soldiers according to their rank, whereas now, a large percentage would also have to be earmarked for paying off the war's financial backers. Earlier, we mentioned that private militaries were a feature of ancient oligarchies—in which non-monarchical actors could raise armies simply by having enough money, with the expectation that markets would supply all the necessary materials and supplies. We think that this is largely a feature of monetized economies that rely on coinage, and thus, could not easily occur in the Bronze Age. Thus, another new form of speculation was born, in which wealthy individuals could effectively bet on the outcome of violent conflicts.

### **A folk typology of billionaires**

In the agricultural and urban societies of the Bronze Age, private wealth was predominantly aristocratic in character. We use the term 'aristocratic' in a technical sense here, to refer to a social order in which the elites largely reproduce themselves by extracting a percentage of agrarian production. In such an aristocratic context, elites own either the land, the laborers who work the land or both. It goes without saying that there is enormous variety in how an aristocratic political economy can be organized. For instance, in the feudal societies of medieval Europe, there was often a strong association (at least in theory) between militarism and land ownership. But aristocracies do not necessarily have a monopoly on warfare, as clearly seen in the case of ancient Rome. Nor is it even necessary for an aristocracy to be formally constituted as such. In the antebellum American South, the enslaver class who controlled the land were not permitted explicit titles of nobility; they were, nonetheless, aristocrats in all but name. The only constant in aristocracy is that the elites primarily derive their wealth by claiming a percentage of agricultural production—*how* they do this varies greatly in time and space.

Aristocracy has probably been the dominant form of private wealth generation from the Early Bronze Age through to the onset of the Industrial Era. Indeed, it still persists in some parts of the world where agriculture remains the major focus of economic activity. To be clear, we are not suggesting that aristocracy is, in any sense, inevitable. Bronze Age societies in Eurasia *can* produce aristocratic forms of wealth hierarchy under certain conditions, as often occurred in Egypt and Mesopotamia. Yet, in other regions, such as the Indus, nothing like this seems to have materialized—even when many of the putative triggers like urbanism and writing were in place (Green 2021). Put it this way: *if* an agrarian society of the Bronze Age were to show substantial wealth inequalities, we would expect such disparities to be largely aristocratic in form. We also acknowledge that there are non-agrarian ways to become wealthy in Bronze Age societies, often encompassed under the catch-all label of trade. We have discussed merchants in some detail in the

preceding chapter, but as we stressed, there were no *oligarchical* merchants in the Bronze Age. Again, per our understanding of the term, oligarchs must individually control wealth on a scale that rivals the state, and no ancient merchant, however successful, was in such a position. Moreover, not all hierarchical societies in the ancient world were organized primarily around agrarian production. The obvious counterpoint is seen in the various historically attested pastoralist societies of Eurasia and Africa, many of which formed states and empires in which livestock was the most important measure of wealth (Honeychurch 2014).

In any event, it is certainly no longer the case that agrarian aristocrats control the largest accumulations of private wealth in the world, and in recent centuries, they have been far eclipsed by a new form of wealth capture that we have here termed oligarchic. Oligarchic wealth is predominantly non-agrarian and is often based on speculation (i.e. ownership of commodities prone to price volatility). In this chapter, we have put forth a narrative in which the earliest manifestations of oligarchy are seen in the Roman Republic and Han China. But, despite these incipient ancient developments, it seems that oligarchy only became globally dominant during the final phases of the Industrial Revolution—meaning that the process by which aristocracy was largely replaced by oligarchy took some 2,000 years to play out. As we have suggested here, several post-Bronze Age structural transformations made oligarchy possible for the first time in human history. One was the introduction and spread of coinage as a medium for exchange from the 6th century BC onwards. The other was the tenfold increase in the size of cities that occurred at roughly the same time. Of course, we do not intend that these two shifts be seen as an exhaustive explanation for the changes we are describing, and there is much work still to be done in order to fully understand the rise of oligarchy. What we have proposed here is, at best, a starting point.

In the modern world, oligarchs have become the norm, whereas in ancient times, they were a precocious phenomenon associated with extremely large and stratified imperial states, such as Rome and China. Today, however, most countries on earth have at least one billionaire. If one were to examine folk typologies of modern billionaires, based on the source of their wealth, the monarchical and aristocratic allusions are evident. Consider, for example, terms like tech *moguls*, robber *barons*, property *tycoons* and finance *magnates*. All these epithets are etymologically derived from words for rulers or lords. Two millennia ago, Sima Qian (Sima 1993: 454) also made the same comparison, saying “the man with 100,000,000 cash may enjoy the pleasures of a king.” Undoubtedly, there were wealthy merchants in the Bronze Age, but we think it unlikely that anyone from those days would have seriously compared a merchant, however eminent, to a king or pharaoh. Private wealth of such magnitude only emerged in the post-Bronze Age context. We also recognize a kleptocratic variant on the oligarch. A kleptocrat does not derive their wealth from their office directly (i.e. as a prebend or salary), but they use their political position in order to enrich themselves through illicit means. In other words, someone who funnels wealth into their private coffers using the instruments of the state is a kleptocrat. Probably, the main practical distinction between kleptocratic oligarchs and the standard variety is that the former must obtain wealth surreptitiously, while the latter can do so openly.

Folk typologies of billionaires are also useful in that they can tell us something about where extreme (i.e. oligarchical) wealth comes from—and also where it does *not* come from. In the 21st century, the very wealthiest people are tech moguls (i.e. digital monopolists, often supported by patent protections) and include figures like Jeff Bezos, Bill Gates, Sergey Brin, Larry Page and Mark Zuckerberg. These individuals made their fortunes through ownership of well-known digital companies like Amazon, Google, Microsoft and Facebook. Slightly less prominent today are the robber barons (i.e. industrial commodity monopolists). Perhaps the most prominent present-day oligarch who falls into this category is Elon Musk, whose wealth is now largely based on his stake in Tesla, the first major manufacturer of electric cars. That said, given the extent to which modern cars incorporate computers and proprietary software, the line between a tech mogul and a robber baron is, perhaps, becoming increasingly blurred. In any case, although robber barons are no longer the absolute richest people in the world, they were only recently displaced from this position by the tech moguls. In the 19th century, robber barons such as John D. Rockefeller, Andrew Carnegie and Cornelius Vanderbilt represented the pinnacle of human wealth inequality. Their fortunes were primarily based on monopolizing industrial commodities like oil, steel and railroads, respectively. In any event, there are still plenty of robber barons in the world, even if they struggle to match the tech moguls for the top spots on the rich lists. Financial magnates (i.e. speculators in debt) are also a major component of modern rosters of billionaires, with Warren Buffet probably being the best-known, although there are also many minor billionaires who fall into this category. Property tycoons (i.e. speculators in urban real estate) are significant, too, especially in regions like East Asia, where many of the richest individuals like Lee Shau Kee and Yang Huiyan have extensive real estate holdings. The wealth of kleptocrats, being illegally acquired, is inherently more difficult to measure. But generally accepted modern examples include former or current heads of state such as Vladimir Putin (Russia), Suharto (Indonesia) and Mobutu Sese Seko (DRC, then Zaire).

By contrast, it is striking how few agri-billionaires exist in the modern world, meaning individuals whose wealth is largely based on their ownership of farmland. The examples that do exist are hardly household names, such as Sultan bin Mohammed Al Kabeer, a Saudi businessman with investments in dairy farming, or the American farmer Harry Stine. These people are less famous because their net worth is usually measured in the low billions, which pales in comparison to the fortunes of the richest tech moguls and robber barons. And, on further examination, it is debatable whether or not the wealth of such farmers is truly based on agriculture in the traditional sense. Harry Stine, for example, made most of his money by licensing seed genetics to companies like Monsanto—another form of patent—not via the actual sale of crops. This being the case, is it reasonable to conclude that there is an inherent structural limitation in how rich someone can become through agriculture? Our analysis suggests that, overall, it is likely that this was the case. As indicated in Figure 6.2, the greatest agrarian landholdings in human history were associated with colonial societies, where foreign elites were given massive swathes of territory. The most extreme examples are Egypt under Byzantine and

Ptolemaic rule, followed by the plantation societies of the colonial Americas. And yet, the non-agrarian wealth of oligarchs far exceeds any of these estates in value. For instance, in the antebellum American Republic, the richest planters had estates with monetary values considerably less than a *hundredth* of those accumulated by the robber barons during the same century.

So, even in a colonial context where agrarian fortunes were amplified by the large-scale dispossession of indigenous landowners and the most exploitative labor regime possible (i.e. racialized chattel slavery), it was still impossible for agrarian wealth to achieve the same scale as that based on other sources. Despite having focused here on speculation (or the lack thereof) regarding agricultural land, there are other factors that should be explored in future research. One such factor is that landed wealth is always conspicuous, in the sense that it is virtually impossible to conceal. This is true both from the point of view of angry peasants *and* envious governments. Popular attempts to redistribute agrarian wealth are certainly a staple of Eurasian history, ancient and modern, whereas it is much more difficult to think of comparable attempts to break up commodity monopolies—at least, in the preindustrial world. There are also many cases where kings have confiscated the properties of lesser nobles, sometimes on rather flimsy pretexts. Landed wealth is, perhaps, the most visible form of all, thereby making it uniquely susceptible to political critique, whether from above or below. In any event, the question of why aristocratic forms of wealth inequality are structurally limited in comparison with their oligarchic counterparts is, in our view, something that merits a great deal more research.

In the ancient world, several of the billionaires in our folk typology could not have existed. For instance, the tech moguls like Bill Gates, Jeff Bezos and Mark Zuckerberg obviously had no direct Roman or Han equivalents. These figures made their wealth via the monopolistic control of new information technologies, which typically depends not only on the existence of computers but also on intellectual property protections like patent laws—an alien phenomenon from the perspective of antiquity. It is also unlikely that there were direct equivalents to the robber barons in the ancient world. Although somewhat older than the tech moguls, robber barons seem to be an exclusive feature of the industrial societies of the past two centuries. The issue of finance magnates is a somewhat different one, since they apparently do predate modern industrialization. We know that such individuals certainly existed during the Renaissance—the House of Medici in the Florentine Republic being by far the most prominent case. And, as we have already discussed, Sima Qian’s history makes multiple references to great fortunes being accumulated via money lending in ancient China. Kleptocratic billionaires seem to have been common in the ancient world as well. Here, we might think of the Roman Quintus Vibius Crispus, who used the power of the state to confiscate the wealth of his rivals, or the infamously corrupt Liang Ji of the Han Empire (Scheidel 2016). Finally, the case of Crassus, which we have examined in detail, suggests that urban real estate speculation was also a process by which ancient oligarchs could accumulate wealth. And, despite the more recent emergence of robber barons and tech billionaires, the property tycoon is still very much with us. It has been estimated

that 10% of the present-day global billionaire class obtained their wealth from real estate (Yakowicz 2019). A comprehensive history of oligarchy is yet to be written, but it would be interesting to explore the various ways in which the sources of extreme wealth have changed over the millennia. Our initial analysis, however, suggests that property tycoons, finance magnates and kleptocrats are among the most ancient forms—whereas robber barons and tech moguls are recent developments of the past few centuries.

Archaeological interest in inequality is often explicitly justified with reference to the present-day crisis of extremely lopsided wealth accumulation. As Kenneth Ames (2019: 179) puts it, “How can we evaluate claims of growing inequality without knowledge of its long-term history?” We completely agree with this sentiment. Yet, so far, archaeologists have regarded this problem as mainly one of methods: how do we measure inequality across deep time? This is an important, but nonetheless, insufficient question. We also need to develop our conceptual architecture and narrative accounts of inequality’s origins, particularly as the theoretical framework we have inherited from social evolutionism is increasingly shown to be inadequate. By presenting the category of oligarchy as a form of extreme wealth that arises through speculation and arguing that its earliest origins lie in the socioeconomic transformations of post-Bronze Age Eurasia, we hope to have offered something new to the existing narratives of the deep origins of inequality.

## 7 Futures

### Summarizing critical paleoeconomics

Elites, urbanism, governance, coinage, capital and growth all have different origin stories. This book represents an investigation into the dynamics of their emergence through a re-engagement with new and heterodox perspectives that have gained purchase in economic theory since 2008. We hope to have provided a template for taking forward the relationship between archaeology and a more plural economics, moving beyond the stale debates between substantivists and formalists, while avoiding a number of neoliberal myths that have insinuated themselves into archaeological thought.

Increasing inequality is an emergent political phenomenon that is distinct from, say, technological innovation or demographic agglomeration but that may co-opt these processes as rhetorical or physical tools to reproduce itself. We have drawn lessons from the works of Thomas Piketty, Mariana Mazzucato and David Graeber, among many others, recasting the stagnant terminology of ancient economics to interpret archaeologically-recognized patterns in terms that better engage 21st century economics. By doing so, we hope we have also done justice to the current archaeological evidence. We acknowledge the historical emergence, existence and effects of elites but argue that their individual agency is constrained within the material or ecological boundaries of their human economies. In doing so, we have set out a new story for the emergence of cities, the rise of citadels, the transformations of metrological and valuation systems, the intensification and extensification of international trade, the birth of the millionaire merchant classes and, eventually, billionaire rentier classes that came to rival the state. We also see many coincidental benefits to our narratives, which help unravel some of the unfruitful theoretical knots in which archaeologists sometimes get themselves tangled (e.g. whether such-and-such ancient site can really be called a city?).

In this brief conclusion, we do not reiterate in detail the content or arguments put forward in the previous chapters. Instead, we take a transversal look at some themes and insights arising between the chapters, while also providing some outlook for the future. The aim of this book has not been to present the definitive global deep history of human economics and its relationship to archaeology. We harbor no conceit that ours can (or even should) be the last word or explanation of everything. We fully expect cogent critique from fellow archaeologists, and

perhaps, historically-minded economists, bristling with frustration that we have misconstrued particular archaeological examples or particular theoretical nuances, passing over important contextual details in our rush to present a new framework. We hope, of course, that such critiques will be constructive, recognizing the spirit of our project and the new perspectives that an active re-engagement with economics can bear upon the ancient past. In this last chapter, now armed with the perspective of our experience in preparing this volume and due humility that crystal-ball gazing is a dangerous pastime, we therefore sketch out some future pathways that we believe may help carry archaeological economics beyond the 21st century AD.

### **What is economics, anyway?**

One of our main arguments has been that archaeology can benefit from re-engaging with and re-thinking fundamental economic ideas. What, exactly, is a human economy, and why is archaeology in a particularly strong position to study it? To us, the economy is the framework humans create to access the resources they need to sustain and reproduce their society in a particular form. Human economies are relational, emerging from the relationships that enable people to access resources in the ecosphere, transfer goods between individuals and groups, but, most importantly, to organize their labor activities involving both the material and immaterial world. All labor activities, even those that do not result in material goods, result in the reorganization of the physical world. In many cases, they will leave identifiable remains (e.g. food collected, objects made and discarded, buildings constructed and abandoned), and thus, furnish a rich proxy record that is accessible using archaeological methods. Archaeology is, therefore, the discipline that can access evidence from the widest range of human economies, including those that emerged deep in the past, and is best positioned to examine how they have changed over the millennia.

Adopting this view of human economics opens a range of further enquiries. For example, if all societies apply labor to resources to make things, then all economies have a rate of economic growth within a particular interval of time. This rate can, of course, be positive, stable or negative, but it can also be high or low with consequent effects on inequality. Thus, considering economic growth rates in the past has implications for the time-honored archaeological topic of the origins of social inequality. Acknowledging the long-term dynamics of economic growth and inequality could also help economists rid themselves of the theoretical constraints imposed by a focusing on GDP, even if a full exploration of that topic could easily fill another book. For us, the point is that economic growth is a dynamic with its own origin story, one that does not necessarily revolve around the machinations of a political and economic elite.

Of course, capital, too, is fundamental to an archaeology that re-engages economics. And clear thinking about capital is sorely needed, as there are few other topics that have been subject to so many competing theorizations. We agree with Thomas Piketty's argument that, when returns on capital outstrip economic growth, inequality rises. However, we have also drawn on the work of the economic

anthropologist, Eric Wolf (1982), who defines capital as access to *other people's labor* that is protected by the cultural, political and legal arrangements of a particular society. Capital originates in the human economies of the world's low-growth citadels, not in its high growth megasites and cities. We believe this formulation both clarifies an important pattern that has emerged from the archaeological record, while also sharpening Piketty's theory of capital. We expect that the dynamics of differing rates of growth and of different ideologies of capital—their rise and fall—have clear outcomes in terms of the (archaeologically recognizable) presence or form of particular economic activities, whether we are talking about food production, craft, international trade or iconography (see Figure 7.1).

### Typologies

Of course, engaging these economic fundamentals requires a certain recommitment to typology. Long before we started writing this book, it had been clear to archaeologists that many of the terms we had been using to describe big patterns in the past (particularly the evolutionist taxonomy of bands, tribes, chiefdoms and states) had begun to restrict rather than enhance our understanding. Two main responses

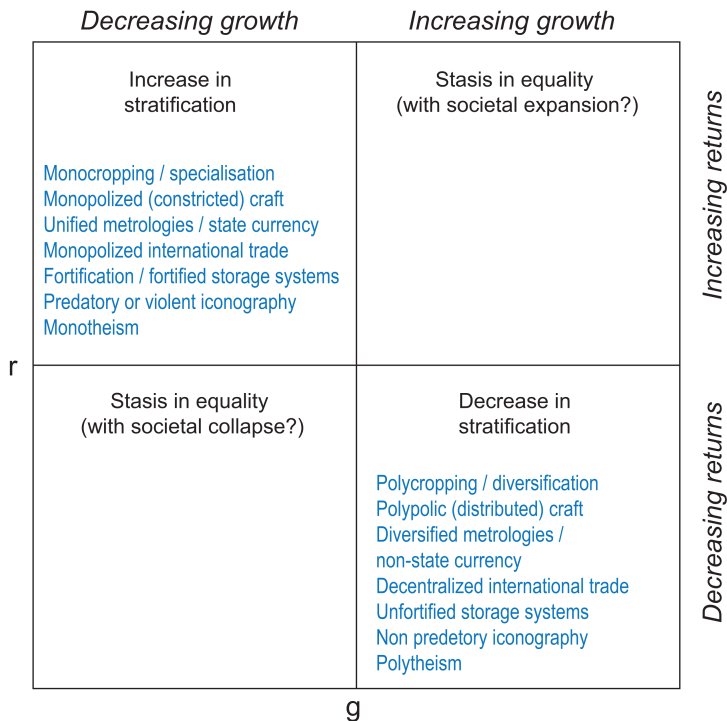


Figure 7.1 Schematic grid showing outcome of different rates of growth and configurations of capital.



arose to this problem. One has been to simply rename the categories, give them more acceptable monikers (occasionally subdividing or combining them), ignore the meta-critique and continue as though there is no problem. The widespread use of the term ‘complex societies’—ambiguously alluding to urbanism, hierarchy, states and chiefdoms—is a good example of this. The other response has been what we might broadly call an anti-structure or iconoclastic response, rejecting typological thinking outright and emphasizing complexity and fragility to argue for the impossibility of reducing the past into categories. We are, of course, sympathetic to both reactions and as authors have all been guilty of consciously or unconsciously applying one or both rhetorical techniques in our past publications. But we would argue that neither is a sustainable strategy for archaeologists to build useful narratives of the past.

The solution is not to reject typological thinking outright but to make sure that our ontological toolkits are fit for the state of the evidence. Typologies allow you to see commonalities; they are a rhetorical toolkit for sorting and analyzing patterns, not the end object of research itself. In this book, we have put forward a new

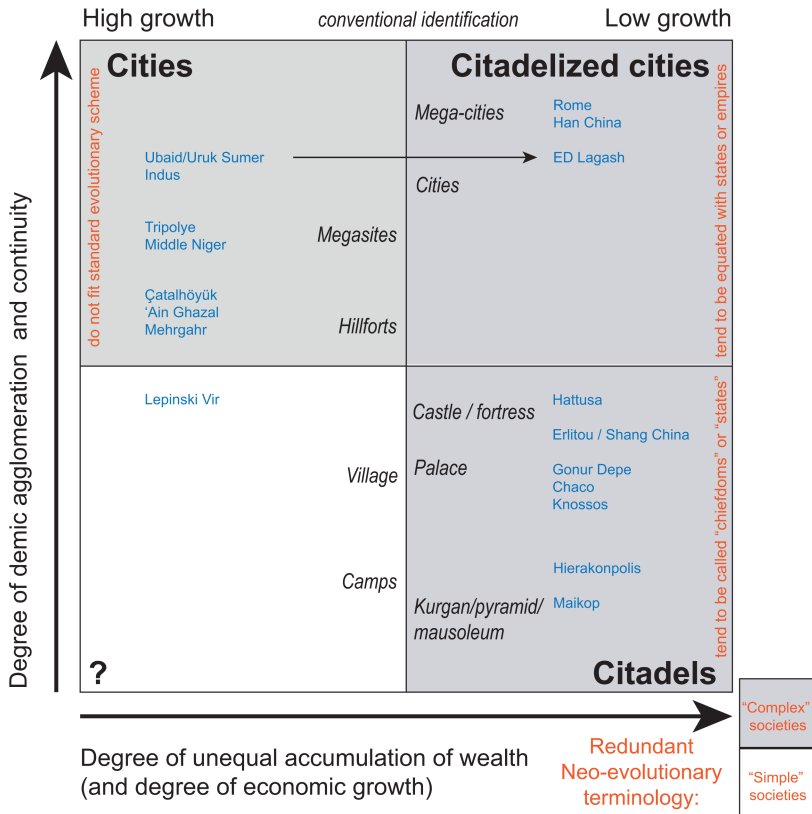


Figure 7.2 Schematic grid showing typological relationship between cities, citadels and citadelized cities.

typology for settlements—cities, citadels and citadelized cities—in order to draw out patterns in the archaeological evidence that have become much clearer over the six decades of data accumulation since Childe defined the Urban Revolution (see Figure 7.2 for a grid summarizing this typology). As we have argued, cities and citadels have separate historical trajectories that are not directly linked. In fact, as we outlined, they are symptoms of opposed economic processes (high growth in the case of cities; low growth in the case of citadels). We find this typological scheme to be useful in identifying global patterns in the archaeological record and hope that others will find it useful, especially as an alternative to older arguments about whether particular settlements are cities, megasites or palaces. At the same time, we would not expect that all settlements will fit neatly into our proposed schema, and we would be concerned if anyone were to try to force any particular case study into our categories against the grain of the empirical evidence. We think our tripartite scheme clarifies a lot of the archaeological record, but it is not a theory of everything.

### **Breaking down the divide between period specialisms (prehistory, classics, medieval and modern)**

As with neoevolutionism, the substantivist-formalist debate in ancient economics, initiated almost a century ago, casts a long shadow over archaeology's ability to engage with past human economies. In our view, the majority of archaeologists have maintained an implicit substantivist perspective (i.e. we have assumed that the insights of modern economics are mostly irrelevant to the past because pre-modern economies were socially embedded and not subject to the logic of the market). Since 2010, however, a growing number of archaeologists have recognized markets and market economies in the past, particularly those working in text-focused fields—especially classicists concerned with the consumer-producer debates in the wake of scholars such as Finlay and Douglas and Assyriologists studying Mesopotamian trading communities. We view both perspectives as problematic. Implicit substantivism has underestimated or even ignored insights that could be derived from topics typically studied by economists, like money. At the same time, implicit formalism has often reproduced the dominant neoclassical/neoliberal view of what makes an economy in the first place (and ignores the fact that modern capitalist economies are also embedded in social relations and traditions). Most mainstream economists, conversely, have simply ignored the distant past, instead relying on long discredited just-so myths—such as the barter origin of money—rather than seeking empirical data from the obvious sources: archaeology and history. This situation is unsustainable for both the disciplines of archaeology and economics.

To move forward productively, it is essential to do more to break down theoretical and intellectual divisions, particularly chronological and methodological silos (e.g. prehistoric, protohistoric, ancient, medieval or modern). Of particular importance in the substantivist-formalist dispute is the definition of modern versus premodern—an intellectual cleavage that has obscured commonalities between modern-day economic behaviors and those of the remote past. For instance, we

have inherited empirically impoverished stories around modernity and social evolution that have wrongly led us to assume that credit instruments and virtual money are recent innovations, whereas the material and textual evidence clearly points to their existence in many times and places in the past (as we argued in Chapter 4 and Chapter 6). We may also need to retreat, strategically, from the short-hand association of labels like ‘modern’ and ‘premodern’ with incommensurate social worlds and instead re-emphasize their role as, at best, mere chronological tools. Too often, there also remains disciplinary policing at the edges of period-based specialisms—between prehistory and the ancient (classical) world or between the medieval and the modern—that discourages scholars from peering over the wall to see what can be learned by direct comparison between periods that are seldom looked at side-by-side. Archaeologists—and historians—should also be able to draw on both material objects and textual sources, something that the growing interest in materiality among historians should facilitate.

### **Beyond *oeconomia*: re-integrating trade into economic anthropology**

Anthropological archaeology, once dominated by neoevolutionary paradigms, has struggled to integrate trade into the investigations of long-term social change. Antagonism towards mercantile peoples, in general, has been a persistent intellectual thread in European thought; Aristotle was famously hostile to the work of merchants. There has been a strong preference in late 20th century archaeology for explanations based on autochthonous development—a reflex against the diffusionist paradigm by which both the New Archaeology of the 1960s as well as its successors have partly defined themselves. Trade, perceived as an activity undertaken with outsiders, was suspect to an anthropological archaeology committed to finding internal reasons for change. Of course, the problem is, again, partly a matter of boundaries: interaction and circulation of objects functions at all sorts of scales and what allows a particular interaction to be defined as *external* trade, as opposed to *internal* interaction, is presumably only that it functions at either long-distances or in a manner that could be undertaken between relative strangers. Ancient communities were not sealed economic and social units in the way that modern nation states are sometimes conceived (although modern states, too, do not fit that template). Presumably, exchange between strangers was not uncommon from the very beginning of human existence, even if the frequency of encountering strangers (and those with very strange customs) has changed through time. But another aspect of neoliberal thinking has also seeped into archaeological perspectives; namely, the idea that, even if trade is acknowledged, it somehow functions separately from politics and culture—a domain of activity with its own internal logic and processes. In Chapters 4 and 5, we have attempted to re-integrate trade and exchange into anthropologically informed archaeological economics. We believe that, if our fields are to move forward, we are going to need to deconstruct the implicit prejudice against trade which remains in anthropologically inspired archaeologies.

Such attitudes toward ancient trade create major obstacles in accurately characterizing those responsible for trade. Cast, on the one hand, as agents carrying

out perfunctory duties for dynasts and as freewheeling elements divorced from the bounds of royal authority on the other (and even sometimes both at once), merchants appear as a contradiction. Modern historians have skirted around this issue by painting ancient merchants as entrepreneurs, searching out new revenue streams by whatever means necessary. Happy to move between public and private realms, these ancient entrepreneurs are figures familiar to us; the first capitalists who enable us to make sense of cities and their growth in the distant past through our own lens of understanding. The problem with this thinking, however, is that it misconstrues *contemporary* entrepreneurs—they are not radical elements operating beyond traditional structures but are just as bound by the opportunities and limits that governmental bodies enforce. A more informed understanding of trade as embedded in local political and extra-local structures reveals how merchants contributed to all sorts of potential urban trajectories.

**In small-things-forgotten and a small-change revolution:  
re-engaging with metrology and money**

Radical paradigmatic shifts can maroon particular fields of enquiry by removing the urgency to advance them, despite considerable previous work. In other cases, scholars feel that everything that can be said in a field has been said already, resulting in a moratorium that ultimately means the insights themselves are forgotten. In both cases, the subsequent generation loses the memory of these insights and understandably fails to integrate the relevant data or ideas into their theory building. Archaeology is also often driven by method, and topics that can generate new methodologies can sustain themselves longer than topics with limited methodological purchase. All these issues are especially pertinent to ancient metrology. Despite being a hot topic of research in the late 19th and early 20th centuries, with founding disciplinary ancestors such as Flinders Petrie expending an inordinate amount of research time on the topic, metrology has now mostly become a niche interest. Occasional bursts of intellectual activity notwithstanding, metrology seldom seems to enter into the core questions of the archaeological enterprise.

We argued, in Chapter 4, that metrology always has political and social contours and is fundamental to ancient economics. We suspect, however, that there are many other similarly unfashionable topics that have been equally neglected. It is essential, therefore, that a renewed field of ancient economics suitable for the 21st century actively seek out neglected intellectual terrain. For example: it is increasingly clear that, despite the widespread origin myth, money was probably never invented to solve the problem of barter, any more than—to paraphrase Graeber (2011, 76)—music or mathematics was invented to solve ‘problems’ like silence or quadrilateral equations. It follows that the understanding and use of material and virtual tokens to facilitate economic relations probably has a very deep antiquity. Humans have always used money—but how money works has changed a lot. Too many histories of money are simply chronological catalogues of coinage or of similar tokens that are legible as such in modern eyes. But money is not so much a thing as it is a system. Recognizing that money is, in some ways, universal is somewhat

revolutionary and potentially controversial, but it is important to remember that money systems (the particular forms and frameworks by which money flowed) have not remained the same through time and that the consequences of these differences are not insignificant. Archaeologists interested in ancient economics urgently need to re-engage with the wider intellectual and economic literature on money and develop clearer theoretical frameworks for making sense of exactly what it is they are talking about when they do.

### **Jargon: saying what we mean and not what we are supposed to say**

All fields have jargon. Specialist terminology is often necessary to facilitate communication. But archaeology has developed a whole range of jargonistic terms that can obscure meaning and produce ideas that are stale and unimaginative. We might call these ‘stop-think’ words because they have special powers. Often used as keywords in titles, abstracts and texts to signal to fellow scholars the kind of discussion we want to be included within, they prompt a kind of closing down of critical thinking. We highlighted some of the problems with neoevolutionist terminologies in Chapter 3—especially chiefdoms—but have struggled to manage one term that dominates some of the critical political economics of our age (both those studying the present and the past); namely, ‘the state.’ While occasionally using the term loosely in this book, the problem is that it continues to have divergent meanings in different disciplines, to the extent that Graeber and Wengrow (2021) outright rejected the term as analytically unsound, given the diversity of political systems and archaeological structures that the concept has been enlisted to explain. We are broadly inclined to agree if the term is used too strictly, although we suspect that some of their objections about heterogeneity might be offset by our typological distinction between cities and citadels.

Nonetheless, we argue that those archaeologists (plus anthropologists, political scientists and historians) who have attempted to trace the origins of the state were, nonetheless, chasing a real but elusive commonality. That commonality is a political paradigm that attempts to monopolize authority to differing degrees of success. Citadel societies naturally tend toward this monopolization, as do citadelized cities, whereas egalitarian cities (cities-without-citadels) may or may not have institutions which attempt to monopolize authority. The key lesson is that we must resist the temptation to deploy too many stop-think words and attempt to describe the phenomena we are discussing with plain but explicit frameworks. If we were to level a critique at our own book, perhaps we have used the term ‘elite’ as a stop-think word, and in future work, should try to deconstruct our usage further.

There is also a contrary tendency in archaeology, no doubt present in many fields. Scholars sometimes develop an allergy to ideas that were once essential to a coherent disciplinary discourse. Sometimes, aversions are justified and problematic concepts are set aside. But sometimes, these aversions are not justified, resulting in paradigmatic critiques that leave vast gaps in disciplinary knowledge. Here, we are thinking of the concept of revolution in archaeology. Despite the popularity and disciplinary influence of revolution through the works of Childe

and Andrew Sherratt—one need only think about the proportion of work devoted to the Neolithic Revolution, Urban Revolution and Secondary Products Revolution—the word has increasingly been seen as problematic. In part, this is the result of increased chronological resolution of our data, which has made phenomena such as the codependence of humans with crops and domesticated animals, which previously seemed dramatic and instant, seem much more gradual. But the gradualist objection is also a misunderstanding of Childe’s actual views, which were much less concerned with the rate of change and more concerned with the fundamental nature of social change itself. But one gets a feeling that gradualism is also an implicit doctrine inherited from neoliberal worldview; by contrast, revolutions are a suspicious Marxist idea. As others have argued before, we would say that evolution and revolution are not opposed characterizations of change but simply a matter of resolution and scale: if one thinks how different was daily life in the Mesolithic village of Lepinski Vir 10,000 years ago, life in the city of Uruk 5,000 years ago and life in Los Angeles today, there are some undeniable revolutionary differences in terms of the material world surrounding each resident. This does not mean, however, that there are not many similarities, not least because human needs for food and sociality are shared, even if their forms and organization are not. We think that terms like revolution should not be entirely expunged from our disciplinary vocabulary, as long as they are used with care. There really was an Urban Revolution; Childe just got a lot of the details wrong.

### **New dawns: an archaeology free of elite determinism**

Finally, we return to one of the central theses of our book: the fact that, despite the power of the myth of elite determinism in archaeological rhetoric and theory-building, the upper classes were not solely responsible for many of the achievements of the ancient world, whether it be cities, metrology, long-distance trade or fine craftworks. Yet this thesis leaves us with a problem. What does archaeology look like once we assume elites are no longer the prime movers of cities, trade, innovation in the past? We have to admit: it is going to be a lot harder. Both Marxist and neoliberal accounts point the finger—negatively or positively—at elite groups or individuals, and both have been highly influential in the construction of our contemporary commonsense. Since much archaeological theory derives from common sense, rejecting this framework leaves us with explanatory gaps. It means we are not going to be able to identify the prime mover in many cases, and we may sometimes have to admit that we simply do not know why things emerged when and how they did.

There will also be a temptation to adopt a highly relativist view: societies make themselves, politically and economically, and everything is possible. The only limits on the shape of human society stem from our own imagination. This is the core manifesto adopted in Graeber and Wengrow’s *The Dawn of Everything*. On one level, we are sympathetic to the motivation behind many of the intellectual handgrenades they have thrown into the debate. The grand narratives of our discipline have indeed become tired and repetitive, so their intervention is, undoubtedly, a

welcome one in certain respects. Yet, we are also deeply concerned by their apparent retreat from any concern with materiality. For the past hundred years or so, we have *imagined* a world in which the extraction of fossil fuels could carry on indefinitely, with no catastrophic consequences or inevitable breakdown of global socioeconomic systems. Many people today are still committed to this belief. Yet, if nothing else, climate change points to the fact that humans cannot simply live by imagination alone; the material world always simultaneously enables and constrains us. Moreover, the neglect of the environment in Graeber and Wengrow's account seems remarkable, given they wrote it two decades into the 21st century—a time when the clash between human socioeconomic systems and the environment has become unavoidable.

Graeber and Wengrow argue that inequality has no origin and has always been with us as a species; it is simply a matter of particular social and political structures. The logical conclusion of this line of reasoning is perplexing. First, it suggests that there is little difference between the inequality seen in Paleolithic burials versus the modern inequality between billionaires and the inhabitants of shanty towns. To us, this is palpably false, given the gigantic material and systemic differences between these contexts. Secondly, it suggests there are no explanatory mechanisms behind social movements in and out of what Piketty (2020: 4) calls “inequality regimes”; it is a random outcome of particular ideologies. In this book, we have identified one potential mechanism behind rising and falling inequality that is not purely political; namely, the dynamic behind high and low growth. Naturally, different ideological regimes will afford different responses to economic growth, but it would be misguided to deny the real material effects of environment, food production and travel potential in producing economic inequalities. History has a shape. But our Piketty-inspired growth explanation presents its own challenge to the modern day, insofar as many socially minded economists are today espousing degrowth as a dual solution to the growing climate crisis and the effects of rising inequality. If Piketty's thesis is correct, these two objectives are contradictory. We do not pretend to have a solution to this, but it must involve better redistribution of resources and a less consumptive paradigm of growth—particularly, one where the object of labor does not result in the uncontrolled release of carbon. Can an ancient economics for the 21st century meaningfully contribute to this debate? We hope it can.

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