Peter Turchin and Daniel Hoyer

Figuring Out the Past

The 3,495 vital statistics that explain world history

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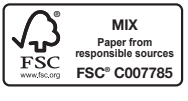

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Introduction

What was history's biggest empire? What was the tallest building ever constructed before concrete? What was the life expectancy in medieval Byzantium? Where did scientific writing first emerge? What was the bloodiest ever human sacrifice?

We are used to thinking about history in terms of stories: who did what to whom. Yet we understand our own world through data: vast arrays of statistics that reveal the workings of our societies. Why not the past as well? *Figuring Out the Past* turns a quantitative eye on our collective trajectory. Behind the fleeting dramas of individual factions and rulers, it looks for large-scale regularities. It asks how key social and technological innovations spread around the world, and it pinpoints outliers from the general trends.

As historians Jo Guldi and David Armitage wrote in *The History Manifesto*: "in a crisis of short-termism, our world needs somewhere to turn to for information about the relationship between past and future". The book in your hands draws on a vast reservoir of historical data that was collected precisely to serve that need. Seshat: Global History Databank was founded in 2011 with the long-term goal of collecting and indexing as much data about the human past as can be known or credibly estimated. Named after the ancient Egyptian goddess of scribes and record-keeping, Seshat is the work of a large international team of historians, archeologists, anthropologists and other specialists. Inevitably incomplete and constantly being updated, it nevertheless has a strong claim to be the most comprehensive body of information

about human history ever assembled in one place. (You can explore it at seshatdatabank.info)

Much as contemporary economic data are used to test theories about the day-to-day evolution of economic systems, Seshat was created to test long-range hypotheses about the rise, workings and fall of societies across the globe. For example, what causes states to develop and spread in the way they have? Why have some societies experienced high levels of growth and well-being while others stagnated? What role have warfare, religion and technology played in the evolution of social institutions? What causes societies to collapse or fracture?

The only way to answer questions like these is to test them against the historical record. Seshat, more than any other resource, collects as much of that record as possible, collated and formatted to make testing practical. The information presented in this book is intended to illustrate some key trends and patterns that emerge when you look at history from Seshat's dizzying vantage point.

A caveat: the figures presented here are only a sample of the data compiled by the Seshat project, which in turn is only a subset of what is known about past societies. All the same, because of the databank's remarkable breadth of scope and through the collaboration of dozens of the world's leading historical experts, the rankings and comparisons that follow are collectively as reliable as could be obtained from any existing resource. They reflect the best, most accurate and most complete information available at the time of writing.

As of 2020, Seshat holds information on over 450 historic societies (identified within the databank itself using the term "polities", to avoid ambiguity). It starts among the first West Asian farming communities in the Neolithic period about 10,000 years ago and ends in the 19th century CE. The Neolithic, in certain regions described as the "Agricultural Revolution", is the time when humans began to settle in one spot and build recognisably distinct communities.

Conversely, the databank stops compiling figures for more modern societies largely because this more recent history is so well known. This book focuses, then, on these lesser-known periods covered by the databank. Nevertheless, data on a handful of 19th- and 20th-century nations are included for comparison among the society profiles that follow. (They are excluded from rankings and comparisons, which are confined to the preindustrial world so as to make room for these less familiar, but nevertheless important, societies to stand out.)

Many of the types of data presented in this book will be familiar to readers of *The Economist*'s annually updated *Pocket World in Figures*. Measures such as society size, populations and life expectancy provide a nearly continuous line from the ancient past to the present day. Others are more exotic, illuminating some of the key traits that distinguished past societies: their agricultural and metallurgic technologies; their governing institutions and provision of public goods; their openness to principles of equality; and so on.

Figuring Out the Past offers sections ranking societies on these items, separated into eras (ancient, medieval, early modern and modern), along with rankings across the eras. It also traces the geographical spread of key technologies and social innovations, from mounted cavalry to coinage, to show where and when some of the most important breakthroughs took place, and how they diffused around the globe. It shows when these crucial innovations arrived in different regions of the world, shining a spotlight on areas often overlooked in global histories, such as sub-Saharan Africa, South America and Polynesia, some of which encountered key technologies for the first time in the ships of colonisers, while others experienced a long history of complex societies and saw indigenous innovations well before the arrival of Europeans, perhaps to the surprise of many readers.

The societies presented here represent those for which the Seshat Databank has well-curated data. As many of these may be unfamiliar to readers, the book contains detailed society profiles which offer a close look at their make-up with respect to a common set of key indicators, along with short introductions highlighting useful information about each.

Taken together, the figures and profiles collected here show how far we have come as a species over the past 10,000 years: from our origins in roving hunter-gatherer bands, to the first settled villages and small chiefdoms, to archaic states ruled by "god-kings" wielding nearly unlimited authority, to modern nation-states populated by hundreds of millions of people powered by ever-evolving technologies.

More than this, however, these figures show how much we all have in common, both with our ancestors and with each other. We all share the need to organise and maintain social cohesion among large and diverse populations. We all have to innovate to survive in changing physical and social environments, to bolster ourselves against the vicissitudes of natural disasters and to interact with neighbours (who may not have peaceful intentions). There is, moreover, a deep continuity in our symbolic lives. We all build glorious monuments to our own ingenuity and creativity. We all seem compelled to develop rituals to create a shared sense of identity. We all have ideals that we strive to live up to.

These concerns have occupied our species at least since before we first started to settle in agrarian villages. One truth that Seshat demonstrates is that, along with many unique milestones that were reached at different places and times, there are plenty of immutable patterns in our shared history. The more things change, the more they stay the same. And nothing makes this fact clearer than a close look at the data.

Society profiles

Ancient: 3000 BCE to 500 CE

Egypt: Old Kingdom

In the centuries before 3000 BCE, one of the world's earliest states (rivalled only by Mesopotamian societies) emerged in the Nile Valley in what is today Egypt. During the Old Kingdom, the period of Egyptian history from around 2650 to 2150 BCE, towering pyramids were built from stone to serve as tombs for divine kings and their queens. The largest, the Great Pyramid at Giza, stood 147 m high and was originally faced with dazzlingly white smooth-dressed limestone.

General

Duration 2650–2150 BCE
Language Ancient Egyptian (Afro-Asiatic)
Preceded by Early Dynastic period Egypt
Succeeded by Period of the Regions or First Intermediate period

Territory

Total area (km²) 75,000–350,000. Difficult to provide precise estimates because it is unclear how much of desert territory surrounding the Nile valley was state controlled.

People

Population 1–1.5m
Largest city No data (Memphis)
Standing army 20,000. State-maintained officer class; expeditions

sourced using conscription and some non-Egyptian military personnel.

Social scale

Settlement hierarchy 1. Capital city; 2. Regional centres; 3. Minor centres; 4. Small settlements; 5. Hamlets.

Administrative hierarchy 1. King (Pharaoh); 2. Vizier; 3. Overseers; 4. Controllers; 5. Inspectors; 6. Under-supervisors; 7. Scribes.

Institutions

Legal code Probably absent. There were property laws and formal written legal instruments, though no evidence for a fully articulated legal code.

Bureaucracy Professional. Several major administrative departments, eg treasury, granaries and other public works.

Religious validation of rule King was thought to be under the patronage of the gods, at times seen as a living god himself; he preserved *maat* (order, justice, righteousness) on the gods' behalf and for the good of the Egyptian people.

Property rights Private property existed.

Price controls Absent

Banking regulations Absent

Economy

Taxation Taxes levied primarily on land and its products.

Coinage Absent

Credit Probably present. Debt structures suggest availability of credit.

Agricultural practices

Main crops Emmer wheat and barley

Irrigation Present, though agriculture mainly relied on inundation from the annual flooding of the Nile.

Fertilising Probably present, though direct evidence is sparse.
Cropping system Nutrient replacement of soil with annual flooding

Metallurgy

Base metal Evidence for copper metallurgy from c. 3000 BCE

Military equipment

Handheld weapons Battle axes, copper-tipped spears, daggers, war clubs and maces.
Armour Wooden parrying sticks and wooden shields covered in cowhide.
Projectiles Returning throw sticks, sling shots, bows and arrows
Incendiaries Inferred absent
Long walls Evidence of some city walls

Well-being

Life expectancy 20–30 years from birth
Average adult stature 169 cm (male); 160 cm (female)
Irrigation & drinking water Irrigation canals and flood control measures present by 2500 BC; desert wells dating long before, possibly from prehistoric period.
Health care Ritual practitioners and physicians (*swnw*) used both material methods, such as surgery and drugs, and supernatural methods such as incantations and magical objects.
Alimentary support Moral duty of the wealthy to give aid to the poor.
Famine relief King and local high officials obliged to distribute grain from granaries in event of food shortage.

(In)equalities

Social mobility Unclear, though there are indications of a largely hereditary elite. Increase in wealth of tombs of lower officials towards the end of this period suggests an increase in mobility.
Occupational mobility Rise in the number of craftspeople towards

the end of this period suggests an increase in occupational mobility, or reduction in social inequality.

Gender equality Women could be priests or hold high positions in certain professions, often related to ritual activity; daughters could inherit as much as sons; non-royal marriage was monogamous.

Slavery Enslaved people were few in number, especially compared with other ancient societies across Afro-Eurasia.

Human sacrifice Unclear. Probably absent, but possible that war captives were sacrificed.

Religion

Majority religious practice Ancient Egyptian religion. State religion centring around the king, considered a divine ruler, dependent on and answerable to the gods; there was great diversity in ritual practice in the wider population, centred around a large canon of supernatural beings.

Rankings

10 largest societies by territory: ancient

Total approximate area under the society's authority at its greatest extent

	Society	*Approx. extent (km²)*	*Region*
1	Eastern Han Empire	6.5m	East Asia
2	Roman Principate	5.8m	Europe
3	Achaemenid Empire	5.5m	Southwest Asia
4	Alexander the Great's Empire	5.2m	Europe
5	Western Han Empire	4.9m	East Asia
6	Western Jin dynasty	4.5m	East Asia
7	Roman Dominate	4–4.5m	Europe
8	Xianbei confederacy	2.3–4.5m	Central Asia
9	Xiongnu confederacy	4.2m	Central Asia
10	Mauryan Empire	4m	South Asia

10 largest societies by territory: medieval

Total approximate area under the society's authority at its greatest extent

	Society	*Approx. extent (km²)*	*Region*
1	Mongolian Empire	25m	Central Asia
2	Yuan dynasty	11–24m	East Asia
3	Umayyad caliphate	9–11m	Southwest Asia
4	Abbasid caliphate	8.3m	Southwest Asia
5	Göktürk khanate	4.5–7.5m	Central Asia
6	Rashidun caliphate	6.4m	Southwest Asia
7	Tang dynasty	6.225m	East Asia
8	Golden Horde khanate	6m	Europe and Central Asia
9	Timurid Empire	5.5m	Central Asia
10	Tibetan Empire	4.6m	Central Asia

10 largest societies by territory: early modern

Total approximate area under the society's authority at its greatest extent

	Society	*Approx. extent (km²)*	*Region*
1	First British Empire	24.5m	Europe
2	Russian Empire	22.8m	Europe
3	Qing dynasty	13.1m	East Asia
4	French Colonial Empire	11.5m	Europe
5	Habsburg Spanish Empire	10m	Europe
6	Iberian Union	7m	Europe
7	Ottoman Empire	5.2m	West Asia
8	Mughal Empire	3.2–4.5m	South Asia
9	Bourbon kingdom	2.5–3m	Europe
10	Safavid Emirate	2.7m	Southwest Asia

10 largest societies by territory in the entire preindustrial era

Total approximate area under the society's authority at its greatest extent

	Society	*Approx. extent (km²)*	*Region*	*Period*
1	Mongolian Empire	25m	Central Asia	Medieval
2	First British Empire	24.5m	Europe	Early Modern
3	Yuan dynasty	11–24m	East Asia	Medieval
4	Russian Empire	22.8m	Europe	Early Modern
5	Qing dynasty	13.1m	East Asia	Early Modern
6	French Colonial Empire	11.5m	Europe	Early Modern
7	Umayyad caliphate	9–11m	Southwest Asia	Medieval
8	Habsburg Spanish Empire	10m	Europe	Early Modern
9	Abbasid caliphate	8.3m	Southwest Asia	Medieval
10	Göktürk khanate	4.5–7.5m	Central Asia	Medieval

10 most populous societies: ancient

Greatest total approximate population living in society territory

	Society	*Approx. population*	*Region*
1	Mauryan Empire	20–100m	South Asia
2	Roman Dominate	40–70m	Europe
3	Roman Principate	50–60m	Europe
4	Western Han	57.6m	East Asia
5	Eastern Han Empire	48–50m	East Asia
6	Qin Empire	40m	East Asia
7	Northern Wei dynasty	32m	East Asia
8	Hephthalite kingdom	26.5m	Central Asia
9	Late Roman Republic	25–35m	Europe
10	Achaemenid Empire	20–26m	Southwest Asia

10 most populous societies: medieval

Greatest total approximate population living in society territory

	Society	*Approx. population*	*Region*
1	Ming dynasty	90–110m	East Asia
2	Northern Song dynasty	60–100m	East Asia
3	Yuan dynasty	60.5–85m	East Asia
4	Tang dynasty	60–80m	East Asia
5	Later Jin dynasty	45–54m	East Asia
6	Timurid Empire	49m	Central Asia
7	Sui dynasty	46m	East Asia
8	Vijayanagara Empire	25m	South Asia
=9	Abbasid caliphate	23–33m	Southwest Asia
=9	Umayyad caliphate	23–33m	Southwest Asia

10 most populous societies: early modern

Greatest total approximate population living in society territory

	Society	*Approx. population*	*Region*
1	Qing dynasty	334–348m	East Asia
2	First British Empire	200–250m	Europe
3	Mughal Empire	110–150m	South Asia
4	French Colonial Empire	30–40m	Europe
5	Tokugawa Shogunate	29–32m	East Asia
6	Iberian Union	30m	Europe
7	Habsburg Spanish Empire	29m	Europe
8	Russian Empire	20–35m	Europe
9	Bourbon kingdom	28.5m	Europe
10	Ottoman Empire	28m	West Asia

10 most populous societies in the entire preindustrial era

Greatest total approximate population living in society territory

	Society	*Approx. population*	*Region*	*Period*
1	Qing dynasty	334–348m	East Asia	Early Modern
2	First British Empire	200–250m	Europe	Early Modern
3	Mughal Empire	110–150m	South Asia	Early Modern
4	Ming dynasty	90–110m	East Asia	Medieval
5	Northern Song dynasty	60–100m	East Asia	Medieval
6	Yuan dynasty	60.5–85m	East Asia	Medieval
7	Tang dynasty	60–80m	East Asia	Medieval
8	Roman Dominate	40–70m	Europe	Ancient
9	Western Han	57.6–60m	East Asia	Ancient
10	Roman Principate	50–60m	Europe	Ancient

10 most populous cities: ancient

Greatest total approximate population living in an urban area

	Society	*Approx. population*	*City*	*Region*
1	Roman Principate	900,000–1.1m	Rome	Europe
2	Roman Dominate	800,000	Rome	Europe
=3	Western Jin dynasty	600,000	Luoyang	East Asia
=3	Northern Wei dynasty	600,000	Luoyang	East Asia
=3	Parthian Empire	600,000	Seleucia-Ctesiphon	Southwest Asia
6	Ptolemaic kingdom	500,000–600,000	Alexandria	North Africa
7	Western Roman Empire	500,000	Rome	Europe
8	Late Republican Rome	400,000	Rome	Europe
9	Western Han Empire	250,000–400,000	Chang'an	East Asia
10	Qin Empire	350,000	Linzi	East Asia

10 most populous cities: medieval

Greatest total approximate population living in an urban area

	Society	*Approx. population*	*City*	*Region*
=1	Tang dynasty	1m	Chang'an	East Asia
=1	Northern Song dynasty	1m	Kaifeng	East Asia
3	Angkor kingdom	750,000–1m	Angkor	Southeast Asia
4	Seljuq sultanate	500,000–1m	Baghdad	West Asia
5	Abbasid caliphate	900,000	Baghdad	Southwest Asia
6	Buyid confederation	500,000–900,000	Baghdad	Southwest Asia
7	Yuan dynasty	800,000	Hangzhou	East Asia
8	Sui dynasty	500,000	Luoyang	East Asia
9	Sassanid Empire	400,000–500,000	Ctesiphon	Southwest Asia
10	Delhi sultanate	200,000–400,000	Delhi	South Asia

Regional adoption

Adoption of bureaucracy by world region

(Refers to the adoption of full-time administrative specialists)

Society	*Region*	*Approx. time of adoption*
Bronze Age Susa	Southwest Asia	early 4th millennium BCE
Pre-dynastic Egypt	North Africa	mid-4th millennium BCE
Indus Valley, urban period	South Asia	late 3rd millennium BCE
Minoan Crete	Europe	early 2nd millennium BCE
Shang dynasty	East Asia	late 2nd millennium BCE
Baiyue kingdoms	Southeast Asia	4th century BCE
Kangju Federation	Central Asia	2nd century BCE
Teotihuacan	North America	3rd century CE
Peru, late intermediate period	South America	13th century CE
Ashanti Empire	Sub-Saharan Africa	18th century CE
Colonial period Papua New Guinea, Orokaiva peoples	Oceania	18th century CE

Adoption of state postal service by world region

(Refers to the adoption of dedicated communications infrastructure)

Society	*Region*	*Approx. time of adoption*
Achaemenid Empire	Southwest Asia	6th century BCE
Qin Empire	East Asia	4th century BCE
Mauryan Empire	South Asia	4th century BCE
Ptolemaic kingdom	North Africa	3rd century BCE
Roman Principate	Europe	1st century BCE
Mongolian Empire	Central Asia	13th century CE
Peru, Spanish colonial period	South America	16th century CE
Ayutthaya kingdom	Southeast Asia	16th century CE
Mississippi Valley, French colonial period	North America	17th century CE
Innovation remained absent until modern period or evidence is unavailable for these regions	*Sub-Saharan Africa Oceania*	

Adoption of a formalised law code by world region

(Refers to the adoption of a formal code of rules/procedures, usually but not always written)

Society	*Region*	*Approx. time of adoption*
Ur Kingdom dynasty III	Southwest Asia	late 3rd millennium BCE
Old Kingdom Egypt	North Africa	early 2nd millennium BCE
Minoan Crete	Europe	8th century BCE
State of Chu	East Asia	5th century BCE
Mauryan Empire	South Asia	4th century BCE
Greco-Bactrian kingdom	Central Asia	3rd century BCE
Funan kingdom	Southeast Asia	3rd century CE
Wagadu kingdom of Ghana	Sub-Saharan Africa	11th century CE
Killke period Inca	South America	13th century CE
Aztec Empire	North America	15th century CE
Kingdom of Hawaii, post-Kamehameha period	Oceania	19th century CE

Adoption of calendars by world region

(Refers to the adoption of a formalised written system for marking time/seasons)

Society	*Region*	*Approx. time of adoption*
Early Bronze Age Susa	Southwest Asia	early 4th millennium BCE
Early Dynastic Egypt	North Africa	late 4th millennium BCE
China, Erlitou culture	East Asia	early 2nd millennium BCE
Minoan Crete	Europe	mid-2nd millennium BCE
Basin of Mexico, late classic period	North America	6th century BCE
Mauryan Empire	South Asia	4th century BCE
Baiyue kingdoms	Southeast Asia	3rd century BCE
Greco-Bactrian kingdom	Central Asia	3rd century BCE
Wagadu kingdom of Ghana	Sub-Saharan Africa	11th century CE
Peru, Spanish colonial period	South America	16th century CE
Innovation remained absent until modern period or evidence is unavailable for this region	*Oceania*	