

The History of the City

From Eridu to the city of the future

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Every city in history has answered one question: what is a city for? This book follows the answers from Eridu to the city of the future. For each period it shows the idea, the builders, the art, the measured curve and the lines that run forward. Every chapter has the same five parts. Chapter 19 lays all the curves side by side, and chapter 20 draws the city of the future from them, with Rome as its ground.

Contents

#	City and period	The idea of the city
0	Before the city: Jericho and Çatalhöyük (c. 9500–6000 BCE)	A settlement without streets: houses side by side, entered from the roof
1	Eridu (c. 5400–2000 BCE)	The house of the god, rebuilt on its own ruins
2	Uruk (c. 4000–2900 BCE)	The city of writing, counting and the wall
3	Mohenjo-daro and Harappa (c. 2600–1900 BCE)	The city of water and drains, without a palace
4	Memphis, Thebes and Amarna (c. 3100–1330 BCE)	The city of the living beside the city of the dead; a capital drawn on empty land
5	Babylon (c. 1800–539 BCE)	The city as the navel of the world
6	Chang'an and the <i>Kaogongji</i> (c. 1100 BCE–900 CE)	The city as a square of the cosmos
7	Miletus and the polis (c. 500–300 BCE)	The grid of Hippodamus and the city of citizens
8	Rome (753 BCE–now)	Vitruvius and the eternal city
9	Teotihuacan and Angkor (c. 100 BCE–1400 CE)	The city as a map of the sky
10	Baghdad and the Islamic city (762–1258)	The round city and the city of the courtyard
11	The medieval city (c. 1000–1400)	The commune, the cathedral and good government
12	The ideal city of the Renaissance (c. 1400–1600)	The city drawn as a perfect figure
13	Baroque Rome and Versailles (1585–1750)	Lines between the nodes, the city as a stage
14	The cities of Utopia (1516–1900)	The city that does not exist yet
15	The industrial city (1800–1900)	Manchester, Haussmann's Paris, Cerdà's Barcelona
16	The garden city and the radiant city (1898–1960)	Howard, Le Corbusier, Wright, Brasília
17	The city people make (1960–1990)	Jane Jacobs, Constant's New Babylon, Archigram, the Metabolists
18	The global and the smart city (1990–2026)	Koolhaas, Songdo, Masdar, The Line, Woven City
19	All cities on one curve	The lines drawn through 7,500 years
20	The city of the future	A city of crossings, with participants with and without bodies

Chapter 0. Before the city: Jericho and Çatalhöyük

c. 9500 – 6000 BCE

The city and its idea

Before there were cities, there were places where people stayed: a spring with a wall and a tower, and a town of houses without streets. Neither is a city in the later sense, but each holds one idea that every later city keeps.

Jericho: the spring and the shared work. A permanent settlement grew at the Ein es-Sultan spring between about 9500 and 9000 BCE, with round mud-brick houses about 5 metres across ([Wikipedia](#)). It covered some 4 hectares, enclosed by a stone wall more than 3.6 metres high, with a stone tower 8.5 metres high and 22 steps inside ([Tower of Jericho](#)). No enemies are known from that time. The wall may have held back floods; the tower, as Barkai and Liran argued in 2011, was placed so that the shadow of the hills at the summer-solstice sunset first touched it and then spread over the town. Building it took an estimated 11,000 working days. The idea is a community bound by one shared work at one source of water.

Çatalhöyük: the house as the city. On the Konya plain in Anatolia, people lived from about 7400 to 6200 BCE in a town of houses built wall to wall, with no streets ([UNESCO](#)). They entered through the roof, and the roofs were the streets. Houses were of similar size, with no palace and no temple; the dead were buried under the floors. Eighteen building levels lie on top of each other. Recent ancient DNA (Yüncü et al., *Science*, 2025) suggests houses passed from mother to daughter. The idea is a city with no centre, where every house is a shrine and an archive.

The builders

The builders have no names; the excavators do. At Jericho: Charles Warren (1868), John Garstang (1930–36), Kathleen Kenyon (1952–58), who redated the tower from about 1400 BCE to the Neolithic, and the Italian–Palestinian mission of Nigro, Taha and Yasmine (1997–2017). At Çatalhöyük: James Mellaart (1961–65), some of whose drawings of wall paintings are now suspected of being invented, and Ian Hodder (1993–2018), who made the site a laboratory of method.

The art

- **The plastered skulls of Jericho.** Ten are known. In the one in the [British Museum](#), found by Kenyon in 1953 and dated 8200–7500 BCE, a face is modelled in plaster over the skull, with shells for eyes. The ancestors stayed in the house, with faces.
- **The wall paintings of Çatalhöyük.** Aurochs, stags and vultures over headless figures. One painting is often read as the oldest map: the town under the twin peaks of the volcano Hasan Dağ. Others read it as a leopard skin and a pattern. Of some 2,000 figurines, fewer than 5 per cent are female, which undercuts the old "mother goddess" reading.
- **The later image.** Jean Fouquet painted the Israelites besieging Jericho around 1470, for a French Josephus, as a walled late-medieval town ([University of Edinburgh image collection](#)). The oldest settlement became, in art, the city of walls that fall.

The curve

For Çatalhöyük the measured curve is not of the town but of what scholars think it held. The estimates fell by a factor of about ten in sixty years.

Estimate	People	Source
Early estimates, from the 1960s	5,000–7,000 (range 2,800–10,000)	Wikipedia
Cessford	1,500–2,000	List of largest cities
Kuijt and Marciniak (2024), middle phase c. 6700–6500 BCE	600–800	Science News

The 2024 figure assumes 40 per cent of the mound was houses, 70 per cent of houses lived in at once, five people per house. For Jericho, estimates for the earliest town run from 2,000–3,000 down to 200–300. The first "cities" may have been villages; what made them cities was not their size but their staying.

The line forward

1. **The wall as the sign of a city** runs to Uruk's wall in chapter 2 and every walled town after.
2. **The tower as a work that binds people** runs to the ziggurats of chapters 1 and 5.
3. **The city without a centre or streets** returns in the egalitarian dreams of chapters 14 and 17.
4. **The ancestors in the house** return as Rome's *lares* and as the city of the dead beside the living in chapter 4.

Sources for chapter 0

[Jericho](#) · [Tower of Jericho](#) · [Çatalhöyük](#) · [UNESCO 1405](#) · [British Museum 1954,0215.1](#) · [Science News on Kuijt and Marciniak 2024](#) · [List of largest cities throughout history](#)

Chapter 1. Eridu: the house rebuilt on its own ruins

c. 5400 – 600 BCE

The city and its idea

Eridu began with a mud-brick room a few metres across on a sand dune, around 5400 BCE. For the next 2,100 years people rebuilt that room on the same spot, eighteen times, each new temple standing on the one before. The first idea of the city is not a wall, a market or a king. It is a place that is returned to.

The place. Eridu lies at Tell Abu Shahrain in southern Iraq, about 24 km south-south-west of Ur ([Wikipedia](#)). When it was founded it lay near the shore of the Gulf, where the Euphrates met the sea and the marshes. Today the coast is about 145 km away. The site sits on a natural rise beside a basin that still fills each winter as a seasonal lake. Eridu stood where three waters met: the river, the sea and the sweet water under the ground.

The house of the god of the deep. The temple was the E-abzu, the house of Enki, god of the deep fresh water, wisdom and magic. The *abzu* was the water beneath the earth, thought to be the source of all life. The city was therefore not built to hold people in. It was built on the point where life was believed to come up out of the ground.

What the Sumerians said. Later Sumerians remembered Eridu as the beginning of everything urban:

- The **Sumerian King List** opens with it: when kingship came down from heaven, it was first in Eridu. Its first kings, Alulim and Alalngar, reign for 28,800 and 36,000 years.
- The **Eridu Genesis** names five cities given out after kingship was made, Eridu first, given to Enki ([Livius](#)). Then comes the flood, and Ziusudra survives it.
- In the myth **Inanna and Enki**, Inanna sails to Eridu and carries off the *me*, the gifts of civilisation, to her own city of Uruk. The idea of the city leaves Eridu and goes to the next city.

How small it was. Eridu was never large. The settlement covered at most 10 to 12 hectares in the Ubaid period, and the main mound measures 580 by 540 metres. Its cemetery holds about 1,000 graves of mud-brick boxes, all oriented the same way. No figure for the population survives.

The idea in one sentence. For Eridu a city is the place where the deep water comes up, where the god lives, and where each generation builds again on what the last one left.

The builders

The people who built Eridu have no names. Its known builders come in three groups: the sages of myth, the kings who capped the old temples, and the archaeologists who dug down through them.

The anonymous builders (c. 5400–3200 BCE). Generation after generation of Ubaid builders worked in mud brick. Their great invention is a form, not a monument. By Temple VII and VI the shrine has taken the *tripartite* plan: a long central hall with rooms on both sides, an offering table and an altar at the ends, the outer walls broken by buttresses and niches, the whole raised on a platform. That plan became the model for temples across Mesopotamia for thousands of years.

The builders of myth.

- **Enki** is himself the builder: in the hymn *Enki's Journey to Nippur* he raises his house in Eridu and then travels to show it to the other gods.
- **Alulim**, the first king of the King List, is chosen as priest-king of Eridu in the Eridu Genesis.
- **Adapa**, the sage of Eridu, is later seen as Alulim's adviser.
- **Uanna**, called Oannes by the Babylonian priest Berossus around 290 BCE, is the first of the seven *apkallū*. He came up out of the sea with the body of a fish and the head, feet and voice of a man, and taught people writing, mathematics, the building of cities, the founding of temples, laws and the division of land ([Livius](#)). The art of the city comes, in this story, out of the water at Eridu.

The kings who capped the past (c. 2100–550 BCE). Ur-Nammu of Ur built a ziggurat over the old temples; his bricks call him "the one who built the temple of the god Enki in Eridu". Amar-Sin (c. 2047–2039 BCE) began a larger one over all eighteen temples and left it unfinished. Nebuchadnezzar II still left

his name there in the 6th century BCE. Around 600 BCE the city was abandoned; A. Leo Oppenheim thought irrigation had salted the soil.

The builders of our picture of Eridu.

Who	When	What they found
Franco D'Agostino and Philippe Quénét	2019–	Iraqi–Italian–French mission: Ubaid cemetery, Ur III temenos wall, new maps of all mounds
Fuad Safar and Seton Lloyd	1946–1949	The full sequence of eighteen temples, the Ubaid cemetery, a clay boat model
H. R. Hall	1919	A survey of the mounds; an early lump of blue glass
R. Campbell Thompson	1918	First dig on the main mound
John George Taylor	1855	Inscribed bricks that named the site as Eridu

Gwendolyn Leick begins her *Mesopotamia: The Invention of the City* (2001) with Eridu, and that is still where the story of the city begins.

The art

The art of Eridu shows a city that faces the water and the depth. The oldest city poem in the world is about its temple.

Clay from the Ubaid city. The digs at Eridu yielded a clay model of a boat, painted Ubaid pottery and a figurine with a lizard-like head. The boat says where the city looked: to the river, the marsh and the sea. The figurines, with their long heads and slit eyes, show that the people of the first city did not picture themselves as they looked in daily life.

The first poem about a city (c. 2300 BCE). The collection of Sumerian temple hymns opens with Eridu. Temple hymn 1 praises the E-unir, the "house which is a ziggurat", as grown together with heaven and earth, and names the *abzu* beneath it ([ETCSL 4.80.1](#)). The colophon names the compiler: Enheduanna, daughter of Sargon of Akkad and high priestess of the moon god Nanna at Ur, the first author in history known by name. The first named writer begins her work at the first city.

The sage from the sea. On the Neo-Assyrian palace reliefs of Ashurnasirpal II and Sennacherib, the *apkallū* appear as men wrapped in the skin of a fish, or with the heads of birds. These are images of the teachers who, in the story told by Berossus, came up at Eridu and taught the building of cities. Small figurines of them were set into the walls of houses or buried under the floor to keep evil out ([Livius](#)). The founders of the city became its guardians.

The first city in the Bible. Genesis 4:17 says that Cain built a city and named it after his son Enoch; Enoch's son is Irad. Some scholars have proposed that the name Irad echoes Eridu. That remains a proposal, but the pattern is the same: the first city carries the name of a son, so it is a family line as well as a place.

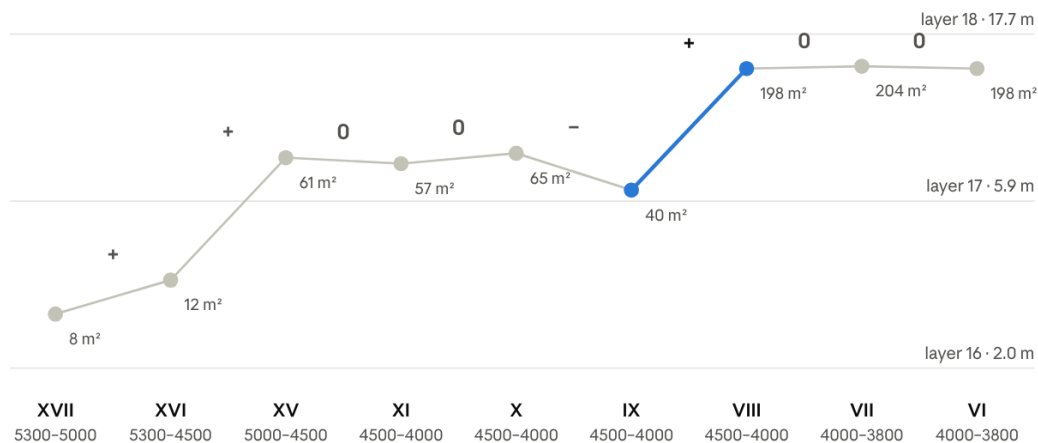
What the art says. None of this art shows streets, crowds or a skyline. It shows a boat, a temple joined to heaven and earth, and a teacher rising from the water. The first image of the city is an image of where it comes from.

The curve

The temples of Eridu give the oldest measured curve of any city: nine floor plans in a row, from 7.8 m² to about 200 m². As a word of steps it reads + + 0 0 – + 0 0.

The house of the god grew from body size to house size in two jumps

Eridu temples XVII to VI (c. 5300–3800 BCE): ladder position of the side of a square of the same floor area



Blue: the one meeting. Temple IX shrinks and Temple VIII is five times its floor. After each jump the house stands.
Levels XIV to XII left no building; the order is by level, because the dates of the levels overlap.

Temple sizes from the Safar and Lloyd excavations, via Wikipedia's table of levels · 9 levels, c. 5300–3800 BCE

Each step between two temples is rising (+), standing (0) or falling (–). A change of less than about 11 per cent in the side of the square counts as standing, the same rule as for Rome in chapter 8.

- **Two jumps, each followed by standing.** From XVI to XV the house grows fivefold; from IX to VIII again fivefold. After each jump the size holds for several rebuildings.
- **One meeting.** From X to IX the house shrinks, and at once VIII rises. A fall met directly by a rise is the one place in the sequence where three steps close: the windows (0, –, +) and (–, +, 0).
- **Rome has no such meeting.** In its population curve Rome turns only through long plateaus. Eridu turns on the spot. The small city can turn at once; the large one needs a time of standing.
- **From body to house.** The first rooms, 2 to 3 metres across, lie on layer 16, the size of a human body. The last temples lie on layer 18, the size of a house. The main mound, 580 by 540 metres, lies on layer 21, the size of a neighbourhood.
- **The same rungs in time as Rome.** The whole temple sequence, about 2,100 years, lies on layer 56 (position 55.83), the rung on which Rome's history since its founding lies (56.09). One rebuilding takes on average about 117 years (53.2), the rung of Rome's century-long steps.
- **The open end.** After Temple VI the house disappears into the platform (levels V to I). The house becomes ground. That open end is picked up about 1,100 years later, when Ur-Nammu builds his ziggurat on top.

The sizes come from one published table, and three levels left nothing. The curve is therefore short and coarse, but it is measured, not guessed.

The line forward

Five lines start at Eridu and run through the rest of this book. The last one runs straight to the city of the future.

1. **Building on the last building.** Eridu is the first tell: a hill made of its own past. The same pattern returns in every city that grows on its own ruins, from Troy to Rome, and in Japan's Ise shrine, rebuilt on the plot beside the old one every twenty years. In chapter 8 it comes back as Rome's *renovatio*, and in 2026 as Roma Continua's "palimpsest".
2. **The raised house.** The platform under the Ubaid temple becomes the ziggurat of Ur-Nammu and Amar-Sin, then the tower of Babylon (chapter 5) and, in memory, the Tower of Babel. The idea that the most important building stands highest, on a mound of earlier time, runs to the Capitol and the cathedral.
3. **The three-part plan.** The tripartite temple, a hall between two rows of rooms, is the oldest plan in the history of architecture that keeps its form. It returns in later Mesopotamian temples and in the hall-and-shrine layout of temples around the Mediterranean.
4. **The idea travels.** In the myth, Inanna carries the *me* from Eridu to Uruk. From the start the idea of the city does not stay in one place: each city takes it from the one before. That is why this book can be read as one line rather than twenty separate cities.
5. **The first citizen had no body.** The central resident of Eridu was Enki, a god who lived in the water under the temple. The people built his house, fed him and gathered round it. The first city was built for a participant without a body, with humans as the second group of residents. The city of the future, with participants with and without bodies (chapter 20), is in that sense not a new idea. It is the oldest one, returning.

Sources for chapter 1

- [Eridu](#), Wikipedia: site, mounds, the table of temple levels XVIII–I with dates and sizes, excavation history, rulers, myths.
- [Eridu Genesis](#), Livius: the five cities, Ziusudra and the flood.
- [Apkallū \(Seven Sages\)](#), Livius: Uanna/Oannes, Berossus, the plaques.
- [The Sumerian temple hymns, ETCSL 4.80.1](#), Oxford: temple hymn 1 to the E-unir of Eridu, and the colophon naming Enheduanna.
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- Konstapel, J. (2026). [Curves in the Vacuum.Net](#), constable.blog. The method behind the curve in this chapter.
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Chapter 2. Uruk: writing, counting and the wall

c. 4000 – 2900 BCE

The city and its idea

Uruk took the idea of the city from Eridu, in the myth literally, and made it large. Around 3100 BCE it covered some 250 hectares; by about 2800 BCE perhaps 600. It was the largest city in the world, and it invented writing to manage itself ([Wikipedia](#)).

Two sacred centres. The Eanna precinct of the goddess Inanna held buildings of almost 3,000 m² each, such as Temple E and the Great Court. The Anu district carried the White Temple on a high terrace. The city was a household of the gods that collected, stored and handed out grain, sheep and labour.

Writing as the city's memory. The earliest writing appears in the Eanna precinct in level IVa. It is accounting: the Kushim tablets record 29,086 measures of barley and carry the oldest personal name known in writing. The city now remembers in clay what it owes and is owed.

The wall. About 9 km of wall, dated around 3000 BCE, enclosed the city. In the *Epic of Gilgamesh* it is the city itself: "Climb upon the wall of Uruk; walk along it" ([translation](#)). The poem measures the city as one third houses, one third gardens, one third fields, and the precinct of Ishtar. The idea is a city that knows its own size.

The builders

- **Gilgamesh**, king of Uruk, is credited with the wall in the Epic. That is literature, not proof, but it is the first time a city is tied to a named builder-king.
- **The scribes and temple administrators** who invented the signs are the real builders of Uruk's idea, and they are nameless.
- **The excavators:** William Loftus (1849–54); the German expeditions under Julius Jordan (1912–13, 1928–31), Nöldeke, Heinrich and Lenzen (to 1967); and Margarete van Ess, who mapped the buried city by magnetometry from 2001.

The art

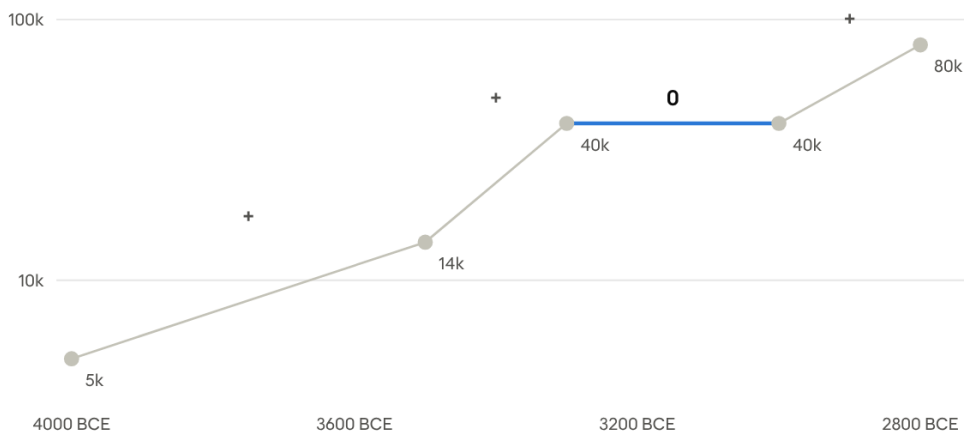
- **The Warka Vase** (Iraq Museum), alabaster, over a metre high, c. 3100–2900 BCE. Its bands rise from water and grain, through sheep and naked bearers of offerings, to the goddess receiving the ruler at her storehouse ([Wikipedia](#)). It is the city drawn as a ladder of gifts. Looted in April 2003, it was returned in June.
- **The Mask of Warka**, a marble face of about 3100 BCE, also looted in 2003 and recovered.
- **The *Epic of Gilgamesh***, in its Standard Babylonian version by Šîn-lēqi-unninni, opens and closes on the wall of Uruk.

- **The later image.** The exhibition *Uruk – 5000 Years of the Megacity* (Pergamonmuseum Berlin, then Herne, 2013–14) showed Uruk rebuilt from satellite data as an animated city ([DLR](#)).

The curve

Uruk grew sixteenfold in 1,200 years, with one pause

Estimated population of the city of Uruk, 4000–2800 BCE, log scale, with the step between each pair of estimates



Blue: the one standing, 3300–3000 BCE, when writing spread. Compiled estimates (Morris, Modelski); Nissen and Algaze put the peak near 50,000 in the city and 80,000–90,000 in the hinterland around 3100 BCE.

Estimates from the List of largest cities throughout history (Morris; Modelski 2003) · 5 points

The population estimates read + + 0 +: growth, a pause around 3300–3000 BCE, then growth again. A second measured series sits inside the pause: the number of proto-cuneiform tablets by level (Nissen 1986).

Level	Date	Tablets
Uruk III	c. 3200–2900 BCE	3,094
Uruk IV	c. 3300 BCE	1,776
Uruk V	c. 3500 BCE	about 190

While the population stood, writing multiplied sixteenfold. In Uruk the standing was not a rest: it was the time the city built its memory. The built area tells the same story in hectares: about 20 around 3800, 250 around 3100, 600 around 2800 BCE.

The line forward

1. **Writing as administration** leads to Babylon's laws (chapter 5) and every bureaucracy after.
2. **The wall as the city's identity**, praised in the first epic, runs to the medieval walls of chapter 11.
3. **The temple on a terrace** grows into the ziggurat and Etemenanki.
4. **The megacity** is a label Uruk received in 2013, looking back from the age of chapter 18.

5. **The limits of the land.** Uruk's decline is linked to salting soil and a shifting river: the first city to grow until its ground gave out.

Sources for chapter 2

[Uruk](#) · [Warka Vase](#) · [Epic of Gilgamesh](#) · [Gilgamesh translation](#) · [DLR reconstruction](#) · [List of largest cities throughout history](#)

Chapter 3. Mohenjo-daro and Harappa: the city of water, without a palace

c. 2600 – 1900 BCE

The city and its idea

On the Indus, cities were built as systems for water rather than as seats of power. Mohenjo-daro, built around 2500 BCE, covered about 240 hectares: a citadel on a raised platform to the west and a lower town laid out on streets crossing at right angles ([UNESCO](#)).

Water in every house. The city had more than 700 wells, about one for every three houses, and covered drains along the streets ([Wikipedia](#)). The Great Bath on the citadel, 12 by 7 metres and 2.4 metres deep, was sealed with bitumen. Bricks, weights and measures were standardised across hundreds of kilometres.

No visible ruler. No palace, no royal tomb and no clear temple have been found. The famous "Priest-King" statue is a modern nickname. The script is undeciphered, so we cannot read who governed. The idea is a city held together by shared rules and shared water, not by a king.

The end. No invasion is attested. The favoured explanation is a drying climate and shifting rivers from about 1900 BCE ([Harappa](#)).

The builders

The builders are anonymous; the names belong to those who found them. R. D. Banerji recognised Mohenjo-daro around 1919–22; John Marshall led the great digs of the 1920s, followed by Ernest Mackay, Mortimer Wheeler (1945) and George Dales (1964–65). Digging largely stopped after 1965 because exposed brick was decaying. At Harappa, Daya Ram Sahni and M. S. Vats dug first; the Harappa Archaeological Research Project, founded in 1986 by George Dales with Mark Kenoyer and Richard Meadow, has worked there since. In 1857, railway engineers had already carried off Harappa's bricks as ballast for the Lahore–Multan line.

The art

- **The "Dancing Girl"**, a bronze of 10.5 cm found in 1926, now in the National Museum, New Delhi.
- **The "Priest-King"**, a steatite bust of 17.5 cm found in 1927, now in Pakistan.
- **The seals:** small square stones with animals and signs, used to mark goods. The city speaks to us only in labels.

- **The later image.** Ashutosh Gowariker's film *Mohenjo Daro* (2016) imagined the city as a stage for a hero and a tyrant, and was criticised for exactly that.

The curve

No measured series exists for Mohenjo-daro itself. Harappa's area by phase is the best Indus curve ([Harappa](#)).

Phase	Date	Built area
Mature Harappan	2600–1900 BCE	about 150 ha, up to about 23,500 people
Kot Diji	2800–2600 BCE	more than 27 ha
Ravi	3300–2800 BCE	about 25 ha (Kenoyer 2023)

The word is **0 +**: a long standing at 25–27 hectares for some seven centuries, then a sixfold jump into the planned city. For Mohenjo-daro, Modelski estimates about 40,000 people around 2500 BCE; the *Oxford Handbook of Cities* calls that figure weak.

The line forward

1. **The grid** returns in Hippodamus (chapter 7), the Roman colony (chapter 8) and Cerdà's Barcelona (chapter 15).
2. **The sanitary city**: drains and wells come back only in the 19th century (chapter 15).
3. **Standards** — one brick, one weight — are the ancestors of the technical norms of every modern city.
4. **The city without a ruler** is the question the egalitarian cities of chapters 14 and 17 keep asking.

Sources for chapter 3

[Mohenjo-daro](#) · [UNESCO 138](#) · [Harappa](#) · [harappa.com](#) · [Mohenjo Daro \(film\)](#) · [List of largest cities throughout history](#)

Chapter 4. Memphis, Thebes and Amarna: the living city and the city of the dead

c. 3100 – 1330 BCE

The city and its idea

Egypt gives three ideas of the city at once: a capital that binds two lands, a ritual city of processions, and a capital drawn on empty desert by one king for one god.

Memphis, the White Walls. Founded around 3100 BCE where the Nile valley meets the delta, Memphis was the hinge of Upper and Lower Egypt ([Wikipedia](#)). Its temple of Ptah, *Hut-ka-Ptah*, probably gave Egypt its name. Beside it, more than 30 km of pyramid fields made a second city, for the dead.

Thebes, the city of Amun. At Thebes the temples of Karnak and Luxor were joined by processional ways, and each year the Opet festival carried the god from one to the other ([Wikipedia](#)). Across the river lay the Valley of the Kings. Homer called it "hundred-gated Thebes". The idea is a city whose streets are routes of ritual.

Amarna, the city from nothing. In the fifth year of his reign Akhenaten chose an empty bay in the cliffs, marked it with boundary stelae and built Akhetaten for the sun disc, the Aten. A strip about 6 km long along the Nile held some 30,000 people or more; within about 15 years (c. 1347–1332 BCE) it was abandoned ([Amarna Project](#)). The idea is the planned capital, made by decree.

The builders

- **Imhotep**, chancellor of King Djoser in the 27th century BCE, later credited with the Step Pyramid and worshipped as a god of healing ([Wikipedia](#)). He is the first architect whose name survives, and the first to be deified.
- **Senenmut**, steward of Queen Hatshepsut, claimed the temple at Deir el-Bahari.
- **Amenhotep son of Hapu**, architect of Amenhotep III, planned his mortuary temple (the Colossi of Memnon) and probably Luxor Temple; he too was later deified.
- **The kings**: Thutmose I began the great expansion of Karnak; Amenhotep III built Luxor; Ramesses II the Ramesseum; Akhenaten built Amarna with the sculptor Thutmose.
- **The excavators of Amarna**: Flinders Petrie (1891–92), Ludwig Borchardt (1907–14), the Egypt Exploration Society, and Barry Kemp from 1977.

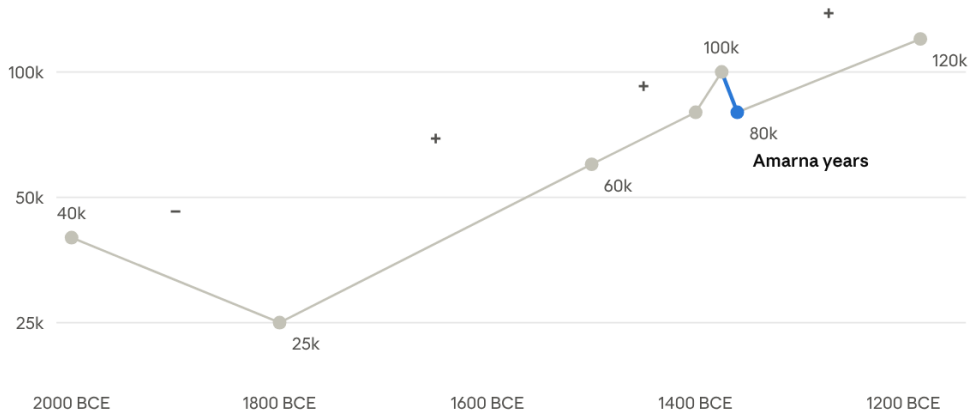
The art

- **The Narmer Palette** (c. 3200–3000 BCE, Cairo): a bull breaks down a city wall. Whether it shows the unification of Egypt is debated ([Wikipedia](#)).
- **The bust of Nefertiti** (c. 1345 BCE), found in the workshop of Thutmose at Amarna in 1912, now in Berlin.
- **The Great Hymn to the Aten**, from the tomb of Ay at Amarna: the whole world as one creation under one light.
- **The later image**. Shelley's "Ozymandias" (1818), written as the statue of Ramesses II from the Ramesseum was coming to London, turned Thebes into the emblem of the vanished city: "Look on my works, ye Mighty, and despair!" David Roberts drew the Great Hall at Karnak in 1838 for his *Egypt & Nubia* ([Royal Academy](#)).

The curve

Thebes dipped when Akhenaten left for Amarna, then rose to its peak

Estimated population of Thebes, 2000–1184 BCE, log scale, with the step between each pair of estimates



Word of steps: – + + + – +. Two direct turns: after 1800 BCE, and the fall and recovery around Amarna.
Compiled estimates (Chandler 1987, Modelski 2003); low firmness.

Estimates from the List of largest cities throughout history (Chandler; Modelski) · 7 points

Thebes is the first city in this book with two direct turns. The estimates read – + + + – +. The fall and immediate recovery around 1360 BCE is the decade when the court left for Amarna and came back. A decree can make a city turn on the spot — and can unmake that turn as quickly. Memphis, by contrast, shows a long standing: about 30,000 from 3000 to 2250 BCE in Chandler's and Modelski's estimates, though Bard puts Old Kingdom Memphis nearer 6,000.

The line forward

1. **The planned capital from nothing** runs from Amarna to Alexandria, Washington (chapter 13), Brasília (chapter 16) and The Line (chapter 18). Most are abandoned or shrink to a fraction of the plan.
2. **The processional axis** runs to Babylon's Processional Way (chapter 5) and the baroque avenue (chapter 13).
3. **The city of the dead beside the living** returns wherever a city keeps its ancestors in view.
4. **The architect as a god**: Imhotep begins the cult of the named architect.
5. **The ruin as warning**: Ozymandias joins Babel in the moral of chapter 5.

Sources for chapter 4

[Memphis](#) · [Thebes](#) · [Amarna](#) · [Amarna Project](#) · [Imhotep](#) · [Senenmut](#) · [Amenhotep son of Hapu](#) · [Narmer Palette](#) · [Nefertiti Bust](#) · [Great Hymn to the Aten](#) · [Ozymandias](#) · [Royal Academy, Roberts](#) · [List of largest cities throughout history](#)

Chapter 5. Babylon: the navel of the world

c. 1800 – 539 BCE

The city and its idea

Babylon made the city the centre of the cosmos. Its ziggurat was called Etemenanki, "the house of the foundation of heaven and earth" ([Wikipedia](#)), and its god Marduk was king of the gods.

The city of law. Hammurabi (reigned 1792–1750 BCE) made Babylon his capital. The prologue of his law code, about 1753 BCE, says the gods made Babylon supreme and gave him the task of bringing justice to the land ([Code of Hammurabi](#)). The city is where the rules of the whole land are written.

The city as a map of all cities. Quarters of Babylon carried the names of older cities, Eridu among them ([Livius](#)). The first city of chapter 1 lives on as a district of the largest one.

The great rebuilding. Under Nebuchadnezzar II (605–562 BCE) the city covered about 10 km², with an outer rampart of some 18 km ([Britannica](#)). It may have been the first city in the world to pass 200,000 people. In 539 BCE Cyrus of Persia took it; the story that he diverted the Euphrates to enter is not confirmed by contemporary sources.

The builders

- **Hammurabi**, lawgiver and builder of the first Babylonian empire.
- **Esarhaddon, Nabopolassar and Nebuchadnezzar II**, who over 88 years rebuilt Etemenanki after Sennacherib destroyed the city in 689 BCE.
- **The labour gangs** Nebuchadnezzar brought from many lands, including the exiles from Jerusalem.
- **Robert Koldewey**, who excavated for the Deutsche Orient-Gesellschaft from 1899 to 1917 and identified Etemenanki in 1900.

The art

- **The Ishtar Gate** (c. 569 BCE), glazed blue brick with aurochs and dragons, opening onto a Processional Way over 800 metres long lined with some 120 lions. Its reconstruction in Berlin's Pergamon Museum stands 14 metres high ([Wikipedia](#)).
- **The Babylonian Map of the World** (6th century BCE, [British Museum](#)): Babylon a rectangle on the Euphrates, the world a disc around it, the ocean a ring.
- **Pieter Bruegel the Elder, *The Tower of Babel*** (1563, [Kunsthistorisches Museum, Vienna](#)). The tower rises beside a Flemish harbour, its arches taken from the Colosseum, every building technique of the day shown at work. The ziggurat became the image of the city that wants to reach heaven and cannot finish.
- **Rembrandt, *Belshazzar's Feast*** (c. 1635–38, National Gallery London): the writing on the wall, the fall of the city in one night.

The curve

Two compilers give two curves for Babylon's population ([List of largest cities](#)).

Year	Chandler	Modelski
430 BCE	200,000	—
500 BCE	—	200,000
562 BCE	200,000	—
600 BCE	100,000	200,000
700 BCE	—	120,000
1700 BCE	—	60,000
1770 BCE	60,000	—

In Modelski's series the word is **++0**: a thousand years of slow growth, a jump under the Neo-Babylonian kings, and a standing at 200,000 that outlives the empire. The tower has its own disputed curve: 91 metres high according to the Esagila tablet, about 66 metres in a 2005 reconstruction, 19 metres of remains above the plain today.

The line forward

1. **The tower** becomes Babel, and Babel becomes the skyscraper and the image of hubris, up to The Line in chapter 18.
2. **The city of law** runs to every civic code.
3. **The ceremonial gate and processional way** run to triumphal arches and the baroque axes of chapter 13.
4. **The city of many languages** is the first global city, long before chapter 18.
5. **The fallen city as a moral image**: "Babylon" becomes the word for every city judged too proud.

Sources for chapter 5

[Babylon](#) · [Etemenanki](#) · [Britannica, Babylon](#) · [Livius, Babylon](#) · [Code of Hammurabi](#) · [Ishtar Gate](#) · [British Museum 92687](#) · [KHM, Tower of Babel](#) · [Bruegel's Tower of Babel](#) · [Belshazzar's Feast](#)

Chapter 6. Chang'an and the *Kaogongji*: the city as a square of the cosmos

c. 1100 BCE – 900 CE

The city and its idea

In China the ideal city was written down as a rule. The *Kaogongji*, the "Record of Trades", describes the capital as a square of nine *li* on each side, three gates in every wall, nine streets running north–south and nine east–west, the ancestral temple on the left, the altar of the soil on the right, the court in front and

the market behind ([Rites of Zhou](#); [CGTN](#)). The ruler stands at the centre of a grid that copies the order of heaven.

The text claims the authority of the early Zhou kings, but most scholars date it to around the 3rd century BCE; it was added to the *Rites of Zhou* under the Han to replace a lost section ([Kaogong ji](#)). It is an ideal written long after the city it describes, and it shaped every later capital.

Chang'an. The Han capital (from 202 BCE) had walls 25.7 km long. The Sui and Tang rebuilt it beside the old site as Daxing–Chang'an: some 78 km² inside the walls, about 108 walled wards, two great markets, a broad central avenue running north to the palace ([Chang'an](#)). Around 750 it held perhaps a million people within its walls, the largest city on earth.

The builders

- **Xiao He**, chancellor of the first Han emperor, rebuilt the palaces from 202 BCE; under **Emperor Hui** the walls were finished in 191 BCE by up to 290,000 workers.
- **Yuwen Kai** designed the Sui capital Daxing in nine months in 582; it became Tang Chang'an in 618 ([Britannica](#)).
- **Empress Genmei** moved Japan's capital to **Heijō-kyō** (Nara, 710), and **Emperor Kanmu** founded **Heian-kyō** (Kyoto, 794), both copies of Chang'an's grid — without walls ([Heian-kyō](#)).

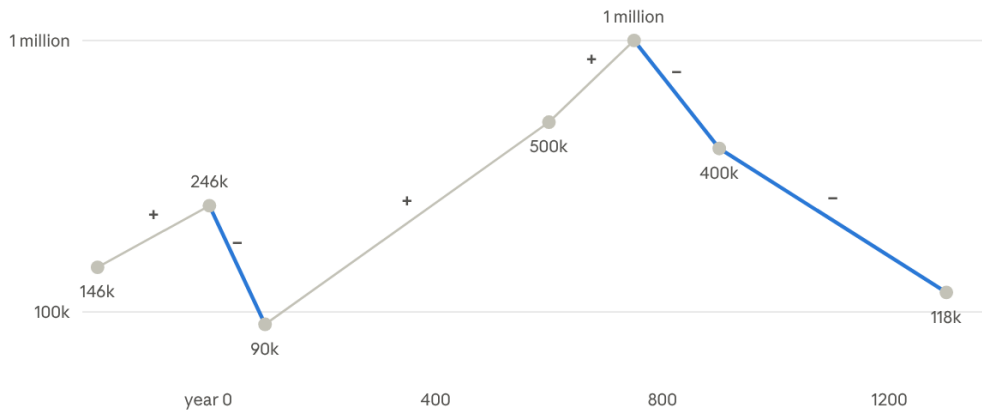
The art

- **Wei Zhuang**, *Lament of the Lady of Qin*, on the sack of Chang'an in 881: the great city as a field of ash ([Wikipedia](#)).
- **Ono no Oyu** in the *Man'yōshū*: Nara "in full bloom" like spring flowers ([Wikipedia](#)).
- **The later image.** Lü Dafang's stone map of Chang'an (1080) merged several periods into one ideal plan and remained the standard image until the late 20th century ([Princeton](#)). Kanō Eitoku's screens *In and Around Kyoto* (16th century) show the grid city alive with about 2,485 figures ([Canon Tsuzuri](#)).

The curve

Chang'an rose and fell with the dynasties that made it their capital

Population of Chang'an (Xi'an), 195 BCE–1300 CE, log scale, with the step between each pair of figures



Blue: the falls. Word of steps: + - + + - -. A census for 2 CE and 195 BCE; the rest are compiled estimates (Chandler, Modelski) with wide ranges, especially for 900 CE.

Chang'an (Wikipedia); Historical urban community sizes (Chandler, Modelski) · 7 points

Chang'an reads + - + + - -. Every fall follows the court leaving or the dynasty breaking: after the Han moved east to Luoyang (25 CE), and after the Tang collapsed, when the new city of 904 covered less than a sixteenth of the old. Like Versailles in chapter 13, a capital built as a cosmic diagram lives on the power at its centre. In Kyoto the western half of the grid, laid on wetland, had turned back into farmland by the 10th century: the perfect square met the ground and lost.

The line forward

1. **The central axis** runs to Beijing, whose north–south axis became a World Heritage Site in 2024.
2. **The grid address:** Kyoto still names places by their street crossings.
3. **The written ideal** — a rule older than any city that follows it — returns in Vitruvius (chapter 8) and Alberti (chapter 12).
4. **The copy without walls:** Japan took the form and left out the defence, the first case of an ideal city exported and changed by the land it lands in.

Sources for chapter 6

[Rites of Zhou](#) · [Kaogong ji](#) · [CGTN, Kao Gong Ji](#) · [Chang'an](#) · [Yuwen Kai](#) · [Heijō-kyō](#) · [Heian-kyō](#) · [Wei Zhuang](#) · [Ono no Oyu](#) · [Princeton, deep map of Chang'an](#) · [Rakuchū rakugai-zu](#) · [Historical urban community sizes](#)

Chapter 7. Miletus and the polis: the city of citizens

c. 500 – 300 BCE

The city and its idea

The Greek polis is a city defined by its citizens, not by its god or its king. Its question is size: how many people can still govern themselves together?

Aristotle's limit. In the *Politics* (VII.4), the best city is "the largest number which suffices for the purposes of life, and can be taken in at a single view". A city too large could not even be addressed: who could be herald to such a crowd "unless he have the voice of a Stentor?" ([Politics VII](#)).

Plato's number. In the *Laws* (737e) Plato fixes the city at 5,040 landholders, with land and houses divided into as many parts, because 5,040 divides by every number up to ten ([Perseus](#)). It is $1 \times 2 \times 3 \times 4 \times 5 \times 6 \times 7$. Aristotle objected that so many idle citizens would need "a territory as large as Babylon".

Miletus. The Persians destroyed Miletus in 494 BCE. After 479 it was rebuilt on a regular grid of streets over the whole centre, about 90 hectares within the walls ([Wikipedia](#)). The plan made the citizens equal on the ground: blocks of the same size, public space in the middle.

The builders

- **Hippodamus of Miletus** (c. 498–408 BCE), whom Aristotle calls the man "who invented the art of planning cities, and who also laid out the Piraeus" ([Politics II](#)). Aristotle mocks his long hair and costly clothes, and reports his ideal city: 10,000 citizens in three classes — soldiers, craftsmen, farmers — on land in three parts: sacred, public and private.
- He did not invent the grid, which Greek colonies used from the 8th century BCE. His novelty was to tie the plan of streets to the plan of society ([Wikipedia](#)). Piraeus (c. 451) and Thurii (c. 440) are attributed to him.

The art

- **Aristophanes, *Birds*** (414 BCE): Meton the geometer arrives with ruler and compass to lay out Cloudcuckooland, "all the straight streets will lead, converging to this centre like a star" — and is beaten off the stage ([Gutenberg](#)). The first planner is also the first planner to be laughed at.
- **Aristotle's compromise** (*Politics* VII.11): straight streets are convenient, crooked ones are better for defence, so lay out only parts of the city straight.
- **The later image.** Leo von Klenze's *Ideal View of the Acropolis and the Areopagus in Athens* (1846, Munich) paints the polis as it was imagined by a Europe that had just rebuilt Athens as a capital ([Pinakothek](#)).

The curve

Athens gives the best-measured citizen body of the ancient world, as estimated by modern historians.

Date	Adult male citizens	Source
317–307 BCE	21,000 counted (perhaps 29,000 in all)	Demetrius of Phalerum's census, via Hansen, BMCR
322 BCE	about 30,000	van Wees 2011

Date	Adult male citizens	Source
4th century	about 30,000	Hansen 2006
c. 404 BCE	about 25,000	Akrigg 2019
431 BCE	at least 60,000 (about 250,000 people in all)	Akrigg 2019 (review)
c. 480 BCE	about 30,000 (about 140,000 in all)	Akrigg 2019

The word is **+ – + 0 –**: the citizen body doubled in the age of empire, halved through plague and war, and then held near 30,000 for a century. That standing level lies close to the sizes the philosophers drew: Hippodamus' 10,000, Plato's 5,040 households, Aristotle's "single view". Athens grew beyond them only while it ruled others.

The line forward

1. **The Hippodamian grid** shapes the Hellenistic and Roman city (chapter 8) and every grid after.
2. **The city of fixed size** — 5,040, 10,000 — returns in More's 6,000 households (chapter 14) and Howard's 32,000 (chapter 16).
3. **"Taken in at a single view"** returns as the walkable city and the neighbourhood that can see itself.
4. **The satire of the planner** returns with Tati (chapter 17).

Sources for chapter 7

[Aristotle, Politics II](#) · [Aristotle, Politics VII](#) · [Plato, Laws 737e](#) · [Miletus](#) · [Hippodamus of Miletus](#) · [Aristophanes, Birds](#) · [Klenze, Pinakothek](#) · [Hansen, BMCR 2007](#) · [Akrigg review](#)

Chapter 8. Rome: the eternal city

753 BCE – now

The city and its idea

Rome is the only city in this book that has lived through rise, fall and standing still and is still there. Its idea of the city is continuity: a place founded again and again from what is already there.

A crossing, not a hill. Rome did not begin on a hill but at a ford in the Tiber, on the salt road from the coast, with the Tiber Island as a fixed point in the stream. Its oldest god, Janus, is the god of doorways and passages, with one face looking back and one forward.

Water as the life of the city. Rome grew while its water came in and went out: eleven aqueducts, from the Aqua Appia of 312 BCE to the Aqua Alexandrina of 226 CE, and the Cloaca Maxima to the river. When the Goths cut the aqueducts in 537, the city fell back for a thousand years. It rose again when the popes restored the water: the Acqua Vergine in 1453, the Felice in 1587, the Paola in 1612.

The genius of the city. The Romans honoured the *Genius urbis Romae* without naming it, and the city had a secret name that might not be spoken. Tibullus called it *Roma aeterna*; Virgil gave it an "empire without end". The idea is that the city outlives every form it takes.

The builders

- **Appius Claudius Caecus**, censor in 312 BCE, built the first aqueduct and the first great road, the Via Appia: water and movement as the first public works.
- **Vitruvius** wrote *De architectura* (c. 30–15 BCE), the only architectural treatise to survive from antiquity. Its triad of *firmitas, utilitas, venustas* (strength, use, beauty) runs through every later chapter.
- **Agrippa** built the Aqua Virgo (19 BCE), which still feeds the Trevi Fountain, and the first Pantheon.
- **Augustus** divided the city into 14 regions and 265 *vici*, neighbourhoods each with a crossroads shrine (Pliny, *Natural History* 3.66), and claimed to have found Rome brick and left it marble.
- **Apollodorus of Damascus** designed the Forum and Markets of Trajan (early 2nd century CE).
- **Aurelian** enclosed 13.7 km² with 19 km of wall (271–275 CE).
- Later builders return in their own chapters: Sixtus V and Bernini in chapter 13; the team of Roma Continua (IT'S, OMA, OKRA and others, 2026) in chapter 18.

The art

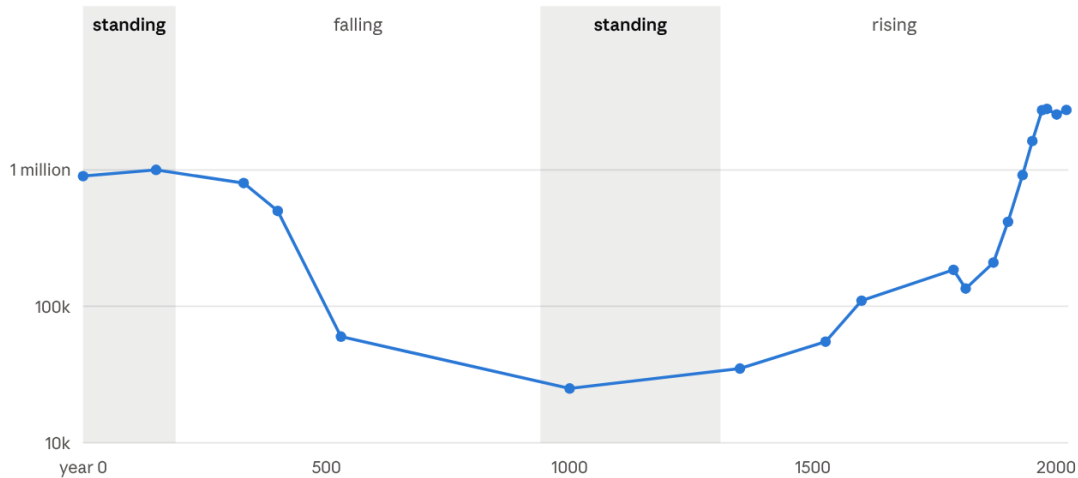
- **The *Forma Urbis Romae***, the Severan Marble Plan (c. 203–211 CE), mapped the whole city at about 1:240 on a wall of the Temple of Peace. It is the first full city plan in art, and it survives in more than a thousand fragments.
- **Virgil's *Aeneid*** (19 BCE) turns the founding into an epic of return: Trojans who lost one city come to found another.
- **Freud**, in *Civilization and Its Discontents* (1930), uses Rome as the image of the mind: a city where nothing that once existed has passed away.
- **Fellini's *Roma*** (1972) finds the living city in its edges, traffic and tunnels, where the metro digging uncovers frescoes that fade the moment air reaches them.

The curve

Rome's population is the longest measured curve of any city in this book: about two thousand years, from estimates for the Empire to the censuses since 1871.

Rome turns only through standing

Population of Rome, year 0 to 2021, log scale; bands from steps of 93.4 years



Before 1871 the figures are estimates; under Augustus scholars range from 450,000 to 1 million.
From 1871: Italian censuses. A step counts as standing when the change is under about 11 per cent.

Estimates before 1871 from The Path of Rome (Morley, Storey, Van Dam, Wickham, Demografia di Roma); censuses from tuttitalia.it · 19 points

Sampled in steps of 93.4 years from 1870 back to the year 0, the curve reads **0 0 - - - - - 0 0 0 0 + + + + + +**.

- **Two plateaus.** A standing at the top (to about 190) and a standing in the low (about 940 to 1310).
- **One long fall and one long rise.** Each runs about eight steps. The rise begins around 1310, long before Rome became capital in 1871.
- **No meeting.** A fall is never met directly by a rise, or the reverse. Rome turns only through a plateau. That holds whether a standing is set at 7 or 20 per cent and wherever the grid starts; only at the finest setting does the low become a direct turn. Compare Eridu (chapter 1), which turned on the spot.
- **Now.** In steps of 31 years since 1870 the word is **+ + + 0**: the city has stood still since about 1995. The last three steps (+, +, 0) do not close. On this axis alone they close only with a fall.

The line forward

1. **Renovatio.** A city refounded from its own ruins becomes the model for every "renaissance" and "regeneration" to come, up to Roma Continua's palimpsest in 2026.
2. **The colony grid.** Rome exported its military camp as a city plan: Timgad, founded by Trajan in 100 CE, is a perfect square of streets. It takes up the Greek grid of chapter 7 and hands it on to Barcelona in chapter 15.
3. **Vitruvius.** His triad is rediscovered in 1414 and becomes the textbook of chapter 12.

4. **The neighbourhood with a shrine at the crossing.** Augustus' 265 *vici* are the fine mesh that later planners keep reinventing, from the parish to the fifteen-minute city.
5. **The plateau as the way to turn.** Rome teaches that a large city cannot turn at once. Whatever the city of the future becomes, it will need a time of standing to get there.

Sources for chapter 8

- Konstapel, J. (2026). *The Path of Rome*. Population estimates, censuses, aqueducts, myths and the ladder positions.
- [Censimenti popolazione Roma 1871–2021](#), tuttitalia.it.
- [Trevi Fountain](#), Wikipedia: the Aqua Virgo of 19 BCE.
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- Morley, N. (1996). *Metropolis and Hinterland*. Storey, G. R. (1997). The population of ancient Rome. *Antiquity* 71.
- Wickham, C. (2015). *Medieval Rome: Stability and Crisis of a City, 900–1150*. Oxford UP.
- Freud, S. (1930). *Civilization and Its Discontents*, chapter 1.

Chapter 9. Teotihuacan and Angkor: the city as a map of the sky

c. 100 BCE – 1400 CE

The city and its idea

On two continents, far from each other, cities were laid out as maps of the heavens and of a sacred landscape. To walk through them was to walk through the order of the world.

Teotihuacan. In the valley of Mexico the whole city was turned about 15.5 to 16.5 degrees east of north. Those directions mark the sunrise and sunset on dates that divide the year into periods of 20 days and give a 260-day count (Šprajc, *Latin American Antiquity*, 2000; [Cambridge](#)). The Avenue of the Dead is the axis; a river was diverted to cross it at a right angle ([UNESCO](#)). The Sun Pyramid is 65 metres high on a base of about 220 by 230 metres. Its people lived in about 2,000 apartment compounds of 60 to 100 people each.

Angkor. In Cambodia, Angkor Wat stands for Mount Meru, the centre of the world: five towers as five peaks, the walls as the mountains around it, the moat as the ocean. At the spring equinox the sun rises over the central tower, seen from the western entrance ([Angkor Wat](#)). Around it lay a city of water: reservoirs, canals and moats over at least 1,000 km² ([Angkor](#)).

The builders

- **Teotihuacan's builders have no names.** Even the city's name is Aztec, given centuries after its fall: "the place where the gods were born" ([Wikipedia](#)).

- **The kings of Angkor:** Jayavarman II, proclaimed universal king in 802; Yasovarman I, who built Yasodharapura around Phnom Bakheng; Suryavarman II, who built Angkor Wat (1113–c. 1150); Jayavarman VII, who built Angkor Thom and the Bayon.
- **The water builders:** the West Baray, begun under Suryavarman I in the 11th century, is 7.8 by 2.1 km and held about 53 million m³ ([Wikipedia](#)). Whether it irrigated fields or stood for the primeval ocean is debated.

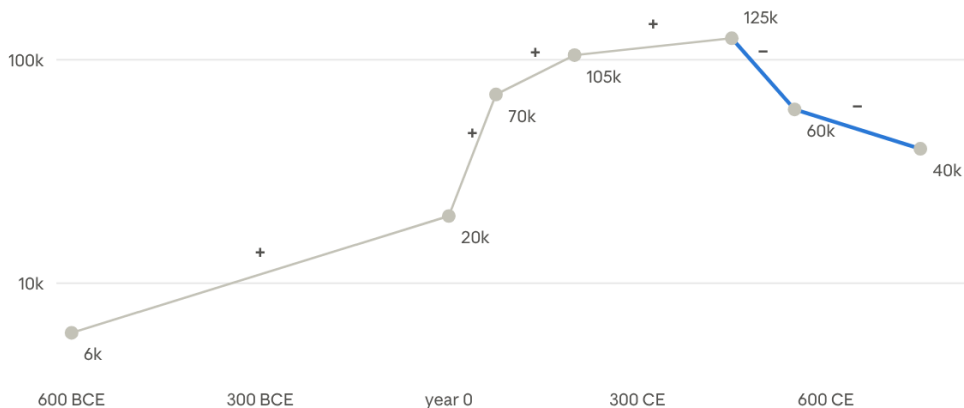
The art

- **The Tepantitla murals** at Teotihuacan: a paradise of water, plants and small figures, once read as the rain god's realm, later as a goddess; who the central figure is remains debated ([Wikipedia](#)).
- **The reliefs of Angkor Wat**, among them the Churning of the Ocean of Milk, gods and demons pulling a serpent around the world mountain.
- **Zhou Daguan**, a Chinese envoy, described Angkor in 1296–97 in *The Customs of Cambodia*, the only eyewitness account of the living city.
- **The later image.** José María Velasco painted the Pyramids of the Sun and the Moon in 1878 ([Artchive](#)). Henri Mouhot's notes (1864) made Angkor famous in Europe, and life-size copies of Angkor Wat stood at the colonial exhibitions in Paris and Marseille.

The curve

Teotihuacan grew for a thousand years and halved within a century

Estimated population of Teotihuacan, 600 BCE–750 CE, log scale, middle of each published range



Blue: the falls. Word of steps: + + + + - -. Estimates (Cowgill; Smith et al.; Sanders et al.); the highest estimate for the peak is 250,000, UNESCO says only "at least 25,000".

Teotihuacan (Wikipedia); Buckley et al. 2023 citing Cowgill 2015 and Sanders et al. 1979 · 7 points

Teotihuacan reads + + + + - -: about a thousand years of growth to a peak around 450 CE, then a fall to half within a century, without a plateau in between. The reason is debated: fire in the centre, revolt, drought. Angkor, mapped by lidar, held some 700,000 to 900,000 people across about 3,000 km² of

Greater Angkor in the 13th century (Klassen et al., *Science Advances*, 2021; [summary](#)). Its decline after about 1431 was also a decline of its water system.

The line forward

1. **The city aligned to the sky** returns in ceremonial axes from Beijing to Washington.
2. **The low-density megacity.** Roland Fletcher, of the Greater Angkor Project: "We predominantly are living in giant low-density cities around the world that are similar to Angkor." Angkor is the ancestor of sprawl (chapter 16).
3. **Infrastructure as fate.** A city that is its water system falls when the water system fails, as Rome did in chapter 8.
4. **The city named by strangers.** Teotihuacan reminds us that a city's meaning can outlive its inhabitants and be given to it by those who come after.

Sources for chapter 9

[Teotihuacan](#) · [UNESCO 414](#) · [Šprajc 2000](#) · [Buckley et al. 2023](#) · [Great Goddess of Teotihuacan](#) · [Velasco 1878](#) · [Angkor](#) · [Angkor Wat](#) · [West Baray](#) · [Klassen et al. 2021](#) · [Popular Archaeology on Angkor](#)

Chapter 10. Baghdad and the Islamic city: the round city and the courtyard

762 – 1258

The city and its idea

The Abbasid caliphs drew the most perfect figure of any city in this book, a circle, and the city escaped it within a generation. What lasted was something smaller: the house turned inward around a courtyard, and the endowment that paid for the city's common goods.

The Round City. Caliph al-Mansur founded Madinat al-Salam, the City of Peace, on 2 August 762. Inside a round wall about 2 to 2.7 km across, four roads ran from four gates — Kufa, Basra, Khurasan, Syria — to the caliph's palace with its green dome and the great mosque at the centre ([Round city of Baghdad](#)). It was finished by 766 with some 100,000 workers. Nothing of it survives; all plans of it are reconstructions, and Jacob Lassner argues it was an administrative and palace compound rather than a city at all.

The city outside the circle. Within fifty years Baghdad had grown far beyond the wall, into Karkh and Rusafa, and the Round City was ruined in the siege of 812–813 ([History of Baghdad](#)). By the 10th century the city covered about 70 km².

The courtyard and the waqf. The everyday Islamic city was built from houses around inner courts, as at Fustat, Cairo's first city ([Archnet](#)), and from *waqf*: inalienable endowments that funded mosques, schools, hospitals, fountains and markets for ever ([Waqf](#)). The common good was not planned from the centre; it was endowed, piece by piece, by many donors.

The builders

- **Al-Mansur**, and the astrologers **Naubakht** and **Mashallah**, who chose the moment of founding.
- **Amr ibn al-As**, who founded Fustat in 641; **Ahmad ibn Tulun**, who built al-Qata'i (868–884); **Jawhar**, who founded al-Qahira, Cairo, for the Fatimids on 8 August 969 ([Fustat](#)).
- **Abd al-Rahman I**, who began the Great Mosque of Córdoba in 785, and **Abd al-Rahman III**, who built the palace city of Madinat al-Zahra after 929 ([Córdoba](#)).

The art

- **Yahya al-Wasiti** illustrated al-Hariri's *Maqamat* in Baghdad in 1237: 96 miniatures of markets, mosques, villages and caravans, the living city just before its fall ([Wikipedia](#)). His work inspired a modern Baghdad art movement in the 20th century.
- **Nasir Khusraw** described the houses of Fustat in the 11th century as rising up to fourteen storeys, with gardens on the roofs.
- **The later image.** The Baghdad of Harun al-Rashid in the *Thousand and One Nights* became Europe's picture of the Islamic city: a place of markets, palaces and stories, not of circles.

The curve

Baghdad's numbers are few and disputed ([Historical urban community sizes](#); Lassner via [Northedge](#)).

Year	Population	Note
1250	150,000	compiled estimate
1200	250,000	compiled estimate
1000	125,000	compiled estimate
10th century	about 280,000, perhaps double	Lassner, from the area of about 70 km ²
800	175,000	compiled estimate

The compiled series reads – + –: a city that rose and fell with the caliphate. The traditional count of 1.5 million (1,500 baths × 200 houses × 5 people) is an inflation. In 1258 the Mongols took the city; Hulegu claimed 200,000 dead, later writers up to two million ([Siege of Baghdad](#)). Libraries were working again within two years.

The line forward

1. **The perfect circle fails as a city:** the Round City joins Sforzinda and Palmanova (chapter 12) as a figure the city grew out of.
2. **The waqf** resembles the English trust, and some scholars think it influenced it: the common good as a permanent endowment.
3. **The inward-turned house** is the opposite of the street-facing house of Jacobs (chapter 17): privacy inside, the street as passage.
4. **The city that grows outside its plan** returns in Brasília (chapter 16).

Sources for chapter 10

[Round city of Baghdad](#) · [History of Baghdad](#) · [Britannica, Baghdad](#) · [Northedge, Samarra](#) · [Siege of Baghdad](#) · [Waqf](#) · [Fustat](#) · [Archnet, Fustat](#) · [Córdoba](#) · [al-Wasiti](#) · [Historical urban community sizes](#)

Chapter 11. The medieval city: the commune and good government

c. 1000 – 1400

The city and its idea

The medieval city is a sworn community. Citizens bound themselves by oath to defend each other, won charters from lords and kings, and governed themselves through councils, guilds and magistrates ([Medieval commune](#)). The city is for the common good, and it says so on its walls.

Siena. From 1287 to 1355 Siena was ruled by the Nine, a council of merchants that changed every two months ([Republic of Siena](#)). In 1339 the city decided to more than double its cathedral, turning the existing church into a transept of a new one. The plague of 1348 stopped the work, and the unfinished walls still stand beside the cathedral ([Siena Cathedral](#)).

Bruges and Venice. Bruges lived from its harbour on the Zwin and gave its name to the *bourse*, the exchange, after the house of the Van der Beurse family where merchants met ([Bruges](#)). Venice closed its Great Council to new families in 1297 and built its Arsenal into the largest workshop in Europe.

The builders

- **The Nine of Siena** and their master builders, who also laid out the shell-shaped Piazza del Campo.
- **Nicola and Giovanni Pisano**, sculptors of the pulpit (1265–68) and façade of Siena's cathedral.
- **The guilds and communes** of Flanders and Italy, who built belfries, town halls and cloth halls as signs of self-government.
- **Venice's health magistrates**, who after the plague opened the first quarantine island (1423) and a permanent health office (1485) ([Medievalists.net](#)).

The art

- **Ambrogio Lorenzetti, *Allegory and Effects of Good and Bad Government*** (1338–39), painted on the walls of the room where the Nine met in Siena's Palazzo Pubblico. Under good government, builders work on roofs, shops are open, people dance in the street and the scroll of Security promises that everyone may travel without fear; under tyranny, houses are being torn down ([Wikipedia](#)). It is the first painting of a whole city as a working system, and it was painted nine years before the plague.
- **Duccio's *Maestà*** (1308–11), carried in procession from his workshop to the cathedral.
- **The Master of the Legend of St Lucy** painted Bruges in the background of his altarpieces so exactly that the stage of building of its belfry can date them.

- **The later image.** Jacopo de' Barbari's woodcut *Venetie MD* (1500), almost three metres wide, showed Venice from the air before anyone could fly ([Wikipedia](#)). Georges Rodenbach's *Bruges-la-Morte* (1892) made the silted, emptied city a character in its own right.

The curve

The sharpest measured event in the medieval city is the Black Death of 1347–51 ([Black Death](#); [Historical urban community sizes](#)).

City	Before the plague	After
Florence	110,000–120,000 (1338)	50,000 (1351)
Venice	100,000–120,000 (1300)	65,228 counted (1363); about 150,000 again by 1423
Siena	25,000–70,000 (estimates differ)	lost 30–50 per cent
Bruges	46,000 or more (c. 1350)	37,000 (1400)

Every city takes one sharp –. What comes after decides its fate. Venice recovered within two generations and then stood for centuries (chapter 12). Florence fell to about a third of its former size, some 37,000–40,000 in the 1427 tax survey, and had only about 59,000 in 1552. Bruges lost its harbour to silt and then its trade to Antwerp. Siena never finished its cathedral: the open wall is the city's own record of a window that did not close.

The line forward

1. **Lorenzetti's common good** is the first programme of urban policy: security, work, trade, and the right to move freely.
2. **The bourse** leads to the stock exchange and to the city as a market (chapter 18).
3. **Quarantine and the health office** begin public-health planning, which returns in the sanitary reforms of chapter 15.
4. **The city depends on its infrastructure:** Bruges, silted up, follows Uruk and Angkor.

Sources for chapter 11

[Medieval commune](#) · [Republic of Siena](#) · [Siena Cathedral](#) · [The Allegory of Good and Bad Government](#) · [Bruges](#) · [Master of the Legend of Saint Lucy](#) · [View of Venice](#) · [Venice and the Black Death](#) · [Black Death](#) · [Historical urban community sizes](#) · [Siena and the plague](#)

Chapter 12. The ideal city of the Renaissance

c. 1400 – 1600

The city and its idea

The Renaissance drew the city before it built it. The ideal city is a perfect figure — a circle, a star, a square — laid on the ground as one design, in which proportion stands for order and order for virtue.

Alberti. Leon Battista Alberti wrote *De re aedificatoria* in ten books around 1443–1452; printed in 1485, it was the first printed book on architecture ([Wikipedia](#)). He asked for the town to be planned as a whole: first the site, then the streets and their direction, then bridges and gates, then the buildings. Beauty for him is a harmony of parts, like music, in which nothing can be added or taken away without harm.

The city as a star. Fortification changed with the cannon, and the angled bastion gave the ideal city its shape: radial streets meeting at a central square, inside a star-shaped wall ([Ideal city](#)).

The builders

- **Filarete, *Sforzinda*** (c. 1464–65), for Francesco Sforza of Milan: an eight-pointed star of two overlaid squares inside a round moat, radial avenues through specialised markets to three central squares, canals along every other street. It was never built ([Wikipedia](#)).
- **Pius II and Bernardo Rossellino** turned the village of Corsignano into Pienza from about 1459: a piazza, a cathedral consecrated in 1462 and palaces in one composition, the first ideal town actually built ([Wikipedia](#)).
- **Leonardo da Vinci**, after a plague in Milan around 1486, sketched a city on two levels: people above, carts and services below, with canals and street widths in proportion to house heights ([Galileo](#)).
- **Venice** founded **Palmanova** on 7 October 1593: a nine-pointed star with a six-sided central square and three gates. Nobody wanted to live there; in 1622 Venice offered pardoned criminals free plots to settle it. It has about 5,300 inhabitants today ([Wikipedia](#)).

The art

- **The three *Ideal City* panels** (late 15th century) in Urbino, Baltimore and Berlin: a piazza in perfect perspective, a round temple at the vanishing point — and no people ([Wikipedia](#)). Their painters are unknown or disputed.
- **The later image.** Giorgio de Chirico's empty piazzas, from *The Enigma of an Autumn Afternoon* (1910) to the *Piazza d'Italia* series, show the same perfect squares four centuries on, now as places of unease ([Wikipedia](#)).

The curve

The ideal cities were drawn, not counted. The great real city of the age, Venice, gives the measured curve ([Timeline of Venice](#); [Cambridge University Library](#)).

Year	Venice, inhabitants
1785	139,095
1706	140,256
1587	150,550
1586	148,637
1548	158,069

The plague of 1575–77 killed more than 60,000, about a third of the city. Yet over two centuries the four steps read **0 0 0 0**: Venice stood. The ideal city on paper was a perfect figure; the real city that lasted was a crooked one on wooden piles that kept the same size.

The line forward

1. **The star and the radial street** lead to Versailles and the trident (chapter 13) and to Washington.
2. **Alberti's harmonic proportion** returns in Le Corbusier's Modulor (chapter 16).
3. **Leonardo's separation of levels** returns in the traffic decks of the Plan Voisin and Brasília.
4. **Palmanova's emptiness** sets the pattern of the planned city that nobody chooses: Brasília's satellite towns, Masdar and The Line in chapter 18.

Sources for chapter 12

[De re aedificatoria](#) · [Ideal city](#) · [Sforzinda](#) · [Pienza](#) · [Palmanova](#) · [Leonardo's ideal city](#) · [The Ideal City \(painting\)](#) · [Giorgio de Chirico](#) · [Timeline of Venice](#) · [Cambridge, Venice census 1586](#) · [Plague in Venice](#)

Chapter 13. Baroque Rome and Versailles: the city as a stage

1585 – 1750

The city and its idea

The baroque city is a city of axes. Long straight streets lead the eye from one monument to the next, obelisks mark the crossings, and the whole city becomes a stage for pilgrimage or for the king.

Sixtus V redraws Rome. In five years as pope (1585–90) Sixtus V cut straight streets between the great basilicas, raised four ancient obelisks at the crossings and brought water back with the Acqua Felice, which fed 27 new fountains ([Wikipedia](#)). He did not redraw the city's form; he drew lines between the places pilgrims already went. It was paid for with heavy taxes, and the people moved out of the way resented it for long after.

Versailles makes the town follow the palace. Louis XIV turned his father's hunting lodge into the seat of the court, which moved there on 6 May 1682. A decree of 1671 gave free plots to anyone who built to the official plan along the avenues that converge on the palace ([Wikipedia](#)). The town is drawn as the antechamber of one man.

The builders

- **Domenico Fontana** moved the Vatican obelisk to St Peter's Square in 1586, a feat of engineering watched by all Rome.
- **Gian Lorenzo Bernini** wrapped the square in his colonnade (1656–67): 284 columns in an oval about 240 metres across, "the arms of the Church" ([Wikipedia](#)).
- **André Le Nôtre** laid out the gardens of Versailles: a Grand Canal of about 1,500 metres (1668–71), today some 800 hectares, 55 fountains and 620 water jets ([Wikipedia](#)).

- **Christopher Wren** handed Charles II a plan for London on 11 September 1666, days after the Great Fire had destroyed some 13,200 houses: a grid with avenues converging on St Paul's. It was rejected; owners rebuilt on their old plots under the Rebuilding Act ([Vetusta Monumenta](#)).
- **Pierre Charles L'Enfant** planned Washington in 1791: a grid crossed by diagonal avenues with circles at their meetings, and the Capitol on a hill ([Wikipedia](#)).

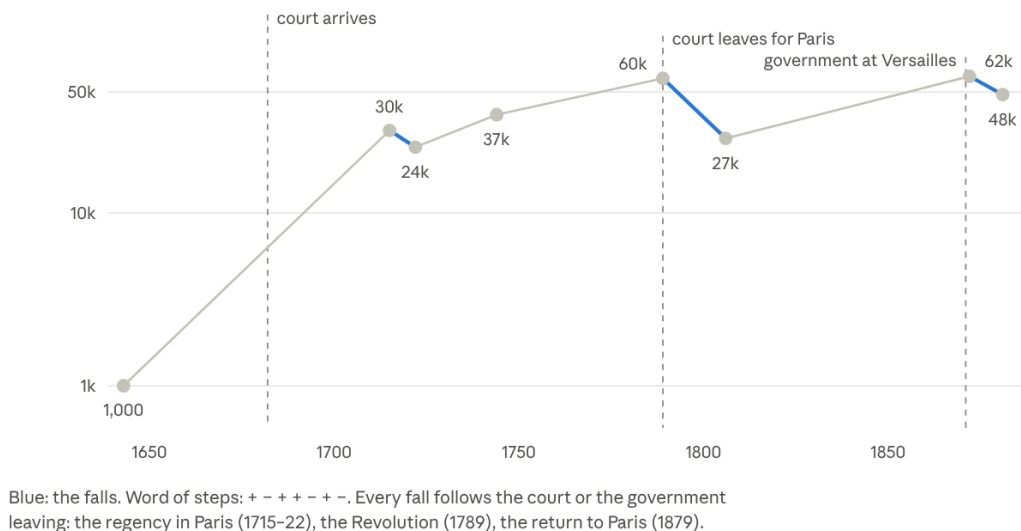
The art

- **Giovanni Battista Piranesi**, *Vedute di Roma* (1748–1774), the *Carceri* (1750, 1761) and *Il Campo Marzio dell'antica Roma* (1762): a map of ancient Rome that is as much invented as reconstructed ([Princeton](#)). The ruin becomes a design tool.
- **Giovanni Paolo Panini**, the twin galleries of *Modern Rome* (1757) and *Ancient Rome* (1758): the city as a collection of pictures on a wall ([Wikipedia](#)).
- **The later image.** Eugène Atget photographed the empty gardens of Versailles from 1901 to 1927, the stage after the actors had gone ([Wikipedia](#)).

The curve

The court town of Versailles rose and fell with the court

Population of the town of Versailles, 1643–1881, log scale; estimates before 1806, censuses after



Versailles, Yvelines ([Wikipedia](#)): estimates 1643–1789, censuses 1806–1881 · 8 points

Versailles is the clearest case in this book of a city that turns on the spot again and again: + - + - + -. It has three direct falls, and each follows the court or the government leaving. A town that exists for one centre has no plateau of its own: it rises and falls with what it serves. Compare Venice in chapter 12, which held one level for two centuries, and Rome in chapter 8, which could only turn by standing still.

The line forward

1. **The axis and the obelisk** pass through Washington to Haussmann's Paris (chapter 15), Burnham's Chicago, New Delhi, Canberra and Brasília (chapter 16).
2. **Property against the plan:** London's refusal of Wren is the first great case of owners defeating a master plan, and it returns in every chapter after.
3. **Piranesi's invented Rome** opens the line of paper architecture: Ledoux (chapter 14), Sant'Elia (chapter 16), Archigram (chapter 17).
4. **The court town** is a warning for every city built around one function: when the function goes, the city goes with it.

Sources for chapter 13

[Pope Sixtus V](#) · [St Peter's Square](#) · [Gardens of Versailles](#) · [Versailles, Yvelines](#) · [Plans of London after 1666](#) · [Great Fire of London](#) · [Rebuilding of London Act 1666](#) · [L'Enfant Plan](#) · [Piranesi](#) · [Princeton, Campo Marzio](#) · [Panini](#) · [Atget](#)

Chapter 14. The cities of Utopia

1516 – 1900

The city and its idea

The utopian city is a moral machine: a fixed number of people, a fixed plan, shared work and shared goods, so that the shape of the city makes its citizens good. It begins as a book and ends as a factory town.

More's *Utopia* (Leuven, 1516) describes an island of 54 cities, with the capital Amaurot in the middle. No city may have more than 6,000 households of 10 to 16 adults; every thirty households elect an officer, and the officers elect a prince. Families change houses every ten years ([Wikipedia](#)). The city is defined first by its limit.

Campanella's *City of the Sun* (written 1602, printed 1623) is a hill ringed by seven walls, with a temple at the top. Its walls are painted with all knowledge, so that walking the city is learning ([Wikipedia](#)).

Andreae's *Christianopolis* (1619) is a square of 700 feet for about 400 citizens, with one street, one market and a round temple ([Mumford](#)).

The builders

- **Claude-Nicolas Ledoux** built the Royal Saltworks at Arc-et-Senans (1775–78) as a semicircle around the director's house, and engraved the ideal town of Chaux around it, never built ([Wikipedia](#)).
- **Robert Owen** ran New Lanark from 1800: about 2,500 people, with a school for infants (1817) and an Institute for the Formation of Character ([Wikipedia](#)). In 1825 he bought New Harmony in Indiana for a community of equals; by 1827 it had failed ([Wikipedia](#)).

- **Charles Fourier** calculated twelve passions and 810 types of character, so that a community needed $2 \times 810 = 1,620$ people, housed in one great building, the *phalanstère* ([Wikipedia](#)).
- **Jean-Baptiste Godin** built the Familistère at Guise (1859–1884) for the workers of his stove factory: three pavilions around glass-roofed courts, 1,748 residents in 1889, a cooperative until 1968 ([French Wikipedia](#)).

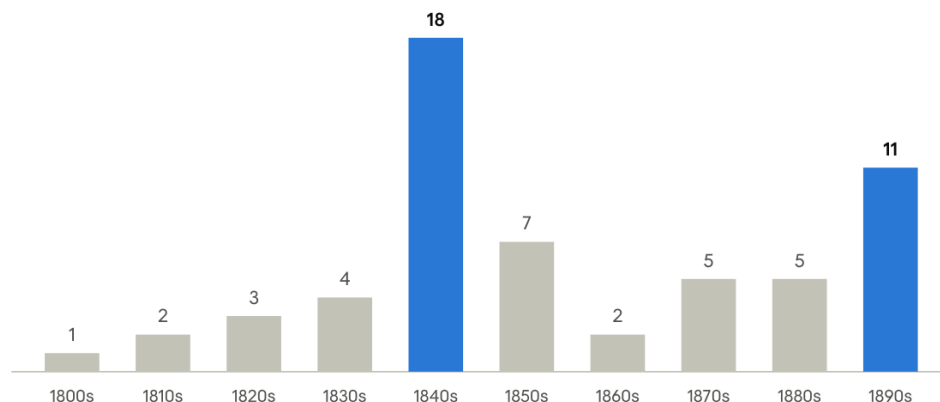
The art

- **The woodcut map of Utopia** in the first edition (1516) and the Holbein illustrations of 1518: the first image of a city that does not exist.
- **Ledoux's engravings of Chaux** (from 1780; published 1804): a city of pure forms, a house for the coopers shaped like a barrel.
- **Stedman Whitwell's view of New Harmony** (1830): a perfect square of buildings, the community drawn as a single building.

The curve

Utopian towns came in two waves: Fourier in the 1840s, Bellamy in the 1890s

Utopian communities founded in the United States per decade, 1800–1899



Counted from Wikipedia's List of American utopian communities, which may be incomplete. About ten of the eighteen in the 1840s were Fourierist phalanxes; the 1890s wave followed Edward Bellamy's *Looking Backward*.

List of American utopian communities (Wikipedia), counted per decade · 10 decades

In the United States the utopian town became a movement. The count per decade reads + + + + - - + 0 + with two clear peaks: the Fourierist phalanxes of the 1840s and the Bellamy and Georgist colonies of the 1890s. Most lasted a few years. The real sizes stay small and close to the books: 400 for Christianopolis, 1,620 for Fourier, 1,748 at Guise, 2,500 at New Lanark.

The line forward

1. **The phalanstère** leads to the Familistère and to Le Corbusier's *Unité d'habitation*, a vertical village (chapter 16).

2. **Owen's model village** leads to Port Sunlight, Bournville and Howard's garden city (chapter 16).
3. **The city of fixed size**, More's 6,000 households, returns in Howard's 32,000.
4. **The city that teaches**, Campanella's painted walls, returns as the city of knowledge in chapter 20.

Sources for chapter 14

[Utopia](#) · [The City of the Sun](#) · [Mumford, The Story of Utopias](#) · [Royal Saltworks](#) · [Ledoux](#) · [New Lanark](#) · [New Harmony](#) · [Charles Fourier](#) · [Phalanstère](#) · [Famillistère de Guise](#) · [List of American utopian communities](#)

Chapter 15. The industrial city

1800 – 1900

The city and its idea

The industrial city is a machine for making and trading, and its first idea is no idea at all: it grows where the factories are. The second idea is the reform that follows: hygiene, circulation and order, imposed on the machine.

Manchester, seen by Engels. Friedrich Engels lived in Manchester in 1842–44 and published *The Condition of the Working Class in England* in 1845. He found the city built so that the middle class could ride through it on the main roads without seeing how the workers lived: "I have never seen so systematic a shutting out of the working-class from the thoroughfares" ([Engels, ch. 4](#)). In Little Ireland about 4,000 people shared some 200 cottages, around 120 people to a privy. Mortality in Manchester, Salford and Liverpool was about four times that of the countryside ([Wikipedia](#)).

The reform city. Paris and Barcelona answered with plans for the whole city: boulevards, sewers, parks and blocks.

The builders

- **Georges-Eugène Haussmann**, prefect of the Seine from 1853 to 1870, demolished 19,730 buildings and built 34,000, laid out boulevards, planted some 600,000 trees, quadrupled the sewers and enlarged Paris from 12 to 20 *arrondissements* ([Wikipedia](#)). Whether the boulevards were made against barricades or for health remains debated.
- **Ildefons Cerdà** planned Barcelona's Eixample (approved 1859): a grid of blocks of 113.3 metres with cut-off corners, built on two sides only around gardens, for some 800,000 people ([Wikipedia](#)). In his *Teoría General de la Urbanización* (1867) he coined the word "urbanisation". In practice owners built on all four sides.
- **Chicago's builders**, after the fire of October 1871: William Le Baron Jenney's Home Insurance Building (1885), ten storeys on a steel frame, the first skyscraper; Daniel Burnham's World's Columbian Exposition (1893) and Plan of Chicago (1909) ([Timeline of Chicago](#)).

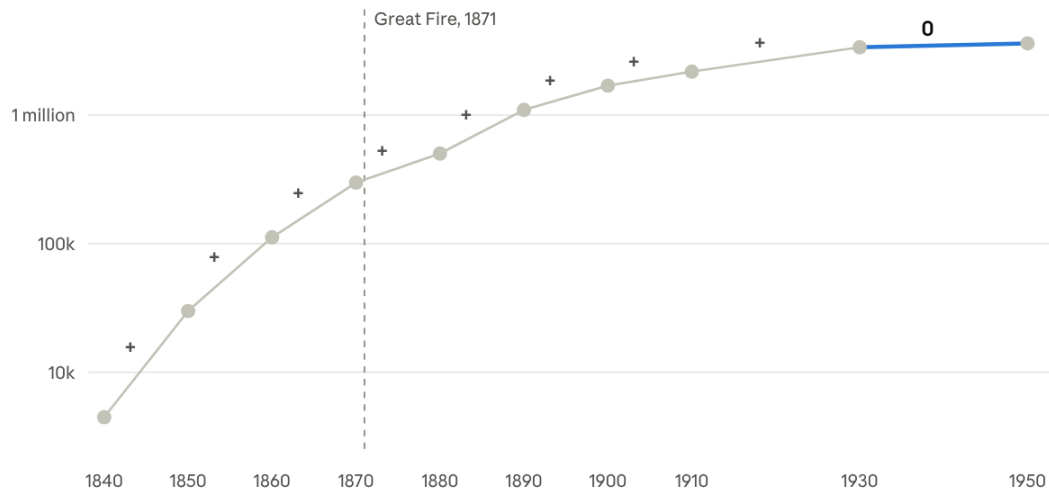
The art

- **Charles Dickens, *Hard Times*** (1854): Coketown, "a town of red brick, or of brick that would have been red if the smoke and ashes had allowed it" ([Gutenberg](#)).
- **Gustave Doré and Blanchard Jerrold, *London: A Pilgrimage*** (1872): about 250 engravings of the richest and poorest city on earth ([Wikipedia](#)).
- **Gustave Caillebotte, *Paris Street; Rainy Day*** (1877, Art Institute of Chicago): Haussmann's new Paris, wide, grey and orderly, with strangers passing under umbrellas ([Wikipedia](#)).
- **The later image.** Van Gogh painted *Prisoners' Round* in 1890 from Doré's engraving of Newgate: the industrial city as a yard where people walk in circles ([Wikipedia](#)).

The curve

Chicago grew 800-fold in 110 years, then stood still

Population of the City of Chicago, US Census 1840–1950, log scale, with the step between each pair of censuses



Word of steps: + + + + + + + 0. From 4,470 in 1840 to 3,620,962 at the 1950 peak; the fire of 1871 barely shows. Blue: the first standing, 1930–1950.

↗ US Census via Wikipedia, Timeline of Chicago history · 10 censuses

Chicago is the purest growth curve in this book: + + + + + + + 0, eight rising steps and then, after 1930, the first standing. London tells the same story more slowly: from about 960,000 in 1801 to 4.2 million in 1891, and a peak of about 8.6 million for Greater London in 1939 ([Victorian London](#)). The great fire of 1871 hardly shows in the curve: the industrial city was strong enough to rebuild at once.

The line forward

1. **The boulevard** leads to Burnham, to Moscow and to the debate between control and hygiene.
2. **Urbanisation as a science**, Cerdà's word, leads to the zoning of chapter 16.
3. **The steel frame** leads to Le Corbusier's towers and to *Metropolis*.

4. **The hidden city**, Engels' workers kept out of sight, returns in the suburbs and slums of chapters 17 and 18.

Sources for chapter 15

[Engels, The Great Towns](#) · [The Condition of the Working Class in England](#) · [Haussmann's renovation of Paris](#) · [Cerdà Plan](#) · [Ildefons Cerdà](#) · [Timeline of Chicago history](#) · [Hard Times](#) · [London: A Pilgrimage](#) · [Paris Street; Rainy Day](#) · [Prisoners Exercising](#) · [Victorian London, population](#)

Chapter 16. The garden city and the radiant city

1898 – 1960

The city and its idea

The twentieth century answered the industrial city in two opposite ways. Ebenezer Howard said: leave it, and build small towns of fixed size in the country. Le Corbusier said: tear it down, and build towers in a park, with motorways between them.

The garden city. In *To-morrow* (1898), reissued as *Garden Cities of To-morrow* (1902), Howard proposed buying 6,000 acres of farmland, building a town of about 30,000 on one sixth of it and keeping the rest as farmland for another 2,000 people: 32,000 in all ([Gutenberg](#)). Six boulevards radiate from a central park; a glass arcade rings it. When a town is full, the next one is founded beyond the green belt.

The radiant city. Le Corbusier's *Ville Contemporaine* (1922) was for three million people; his *Plan Voisin* (1925) would have replaced much of the Right Bank of Paris with eighteen identical towers ([Wikipedia](#)); his *Ville Radieuse* (1930) shaped a city like a human body. The Athens Charter of CIAM (1933) divided the city into four functions: living, working, recreation and circulation ([Wikipedia](#)).

The builders

- **Ebenezer Howard**, with Barry Parker and Raymond Unwin at **Letchworth** (from 1903) and later **Welwyn** (from 1919–20) ([Wikipedia](#)).
- **Le Corbusier**, who finally built a whole city at **Chandigarh** (from 1951, with Pierre Jeanneret, Maxwell Fry and Jane Drew), on Albert Mayer's earlier plan, for about 500,000 people ([Wikipedia](#)).
- **Frank Lloyd Wright**, *Broadacre City* (1932–35): an acre for every family, the city spread across the land and held together by the car ([Wikipedia](#)).
- **Lúcio Costa and Oscar Niemeyer**, with Roberto Burle Marx, built **Brasília** in about 41 months; it was inaugurated on 21 April 1960, planned for 500,000 ([Wikipedia](#)).

The art

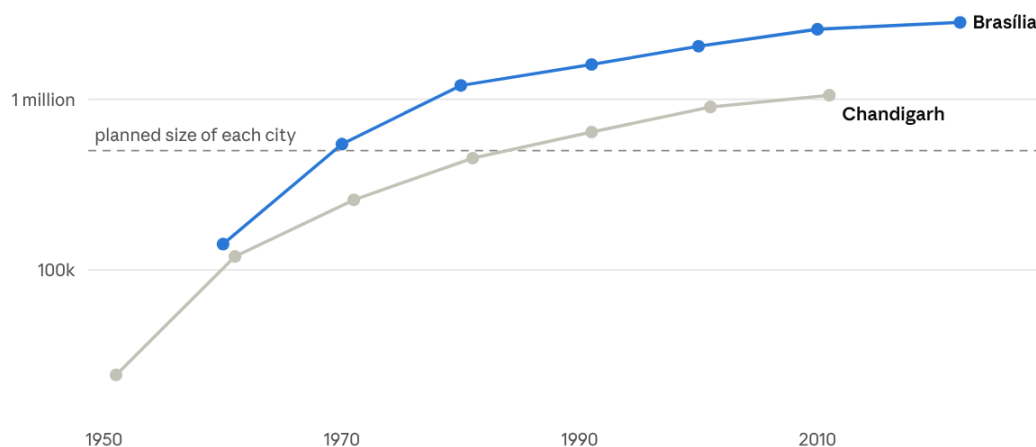
- **Antonio Sant'Elia**, *Città Nuova* (1912–14): stepped towers, lifts on the outside, roads and railways on many levels. He was killed in the war in 1916 and built nothing ([Wikipedia](#)).

- **Fritz Lang, *Metropolis* (1927):** towers above, workers below, a city run by one man. It was inspired by Lang's first sight of New York in 1924 ([Wikipedia](#)).
- **The later image.** Jacques Tati's *Playtime* (1967) built the radiant city as a film set and filled it with people who keep bumping into the glass (chapter 17).

The curve

Both planned capitals passed their planned size and kept growing

Census population of Brasília's Federal District and of Chandigarh, log scale, against the 500,000 each was planned for



Brasília's Plano Piloto itself never reached 500,000; the growth went to satellite towns outside the plan. Brasília from 1960 (inaugurated 21 April 1960), Chandigarh from 1951.

↗ Censuses via Wikipedia (Brasília; Chandigarh) · 14 points

The planned capitals read + + + + 0 (Brasília, per census) and + + + + + (Chandigarh): fast growth, with Brasília reaching its first standing only after 2010. Both passed the 500,000 they were planned for, Brasília within about a decade. But the growth came outside the plan: the Plano Piloto stayed below its size while satellite towns filled up around it. Letchworth took a century to reach Howard's 32,000: 10,302 in 1921, about 34,000 in 2021. The garden city grew too slowly, the radiant city too fast, and neither as designed.

The line forward

1. **The garden city** leads to Britain's New Towns (1946), to Canberra and New Delhi, and, against Howard's intention, to the suburb.
2. **The radiant city** leads to the *Unité d'habitation*, to the housing blocks of the 1950s and 60s, and to Pruitt-Igoe (chapter 17).
3. **Broadacre** leads to American sprawl around the car.
4. **The plan against the people:** from Palmanova to Brasília, the planned city fills in places its planners did not draw.

Sources for chapter 16

[Howard, Garden Cities of To-morrow](#) · [Garden city movement](#) · [Letchworth](#) · [Plan Voisin](#) · [Ville Radieuse](#) · [Athens Charter](#) · [Chandigarh](#) · [Broadacre City](#) · [Brasília](#) · [Sant'Elia](#) · [Metropolis](#) · [Letchworth 1921, Past Place](#)

Chapter 17. The city people make

1960 – 1990

The city and its idea

After the radiant city came the revolt from the street. Between 1960 and 1990 the idea of the city moved from the drawing board to the people who use it: the city is what happens on the pavement.

Eyes on the street. Jane Jacobs' *The Death and Life of Great American Cities* (1961) argued for mixed uses, short blocks, density and buildings of different ages, against the superblock and the expressway ([Wikipedia](#)). She fought Robert Moses over Washington Square Park, closed to traffic in 1958, and over the Lower Manhattan Expressway, revived in 1962, 1965 and 1968 and finally dropped; she was arrested at a hearing on 10 April 1968 ([Jane Jacobs](#)).

The day modern architecture died. Pruitt-Igoe in St Louis, by Minoru Yamasaki, was finished in 1954–55: 33 towers of 11 storeys, 2,870 apartments. On 16 March 1972 the first block was blown up; Charles Jencks later dated the death of modern architecture to the demolitions of that year, "July 15, 1972 at 3:32 pm" ([Wikipedia](#)).

The city that people build themselves. John F. C. Turner worked in the self-built *barriadas* of Peru from 1957 to 1965 and argued in *Freedom to Build* (1972) and *Housing by People* (1976) that residents should control their own housing. He became a principal source of UN and World Bank self-help policy ([Wikipedia](#)).

The builders

- **Kevin Lynch**, *The Image of the City* (1960): the city as people carry it in their heads, made of paths, edges, districts, nodes and landmarks.
- **Christopher Alexander** and colleagues, *A Pattern Language* (1977): 253 patterns that together form a language anyone can use to build. It later inspired the first wiki and software design patterns ([Wikipedia](#)).
- **The Metabolists**, with their manifesto at the World Design Conference in Tokyo (May 1960), and their mentor **Kenzo Tange**, whose Plan for Tokyo 1960 laid a linear city of about 80 km across Tokyo Bay. **Kisho Kurokawa's** Nakagin Capsule Tower (1972) had 140 replaceable capsules; it was demolished in 2022, and capsules went to MoMA and SFMOMA ([Wikipedia](#)).
- **Archigram** (Peter Cook, Ron Herron and others): Plug-In City (1964), Walking City (1964–66), Instant City ([Wikipedia](#)).

- **Constant Nieuwenhuys**, *New Babylon* (1959–74): linked, changeable structures raised above the ground for *homo ludens*, a life of play after the end of work ([Wikipedia](#)). Much of it is in the Kunstmuseum Den Haag.

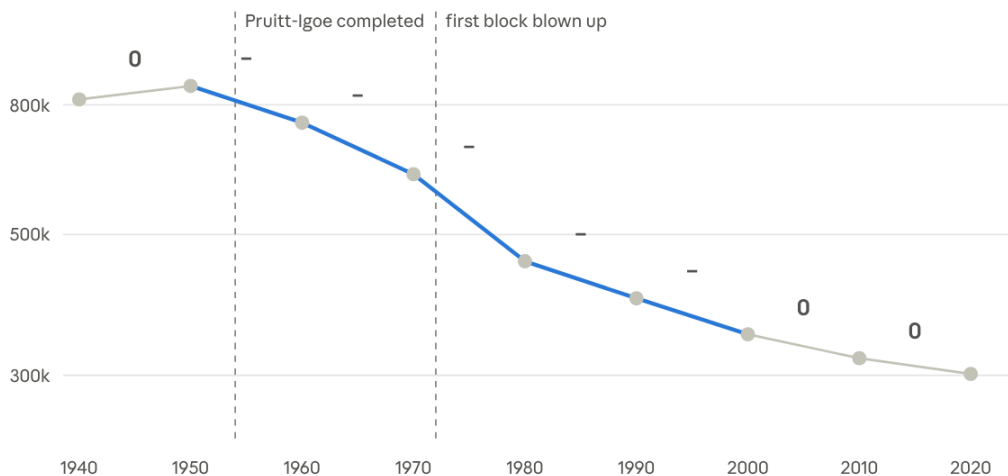
The art

- **Italo Calvino**, *Invisible Cities* (1972): Marco Polo describes 55 cities to Kublai Khan, each named after a woman, and every one of them is a way of describing Venice ([Wikipedia](#)).
- **Jacques Tati**, *Playtime* (1967): a whole glass-and-steel city, "Tativille", built as a film set, where people bend the straight lines back into curves ([Wikipedia](#)). It bankrupted its maker.
- **Ron Herron**, *Walking City on the Ocean* (1966), collage in [MoMA](#).
- *Koyaanisqatsi* (1982) used the film of Pruitt-Igoe falling.

The curve

St Louis lost almost two thirds of its people after Pruitt-Igoe was built

Population of the City of St Louis, US Census 1940–2020, log scale, with the step between each pair of censuses



Word of steps: 0 - - - - 0 0. Peak 856,796 in 1950; 301,578 in 2020. New York over the same years stays between 7.1 and 8.0 million in every census, never falling a full step.

↗ US Census via Wikipedia, St. Louis · 9 censuses

The US core city emptied in exactly the years of this chapter. St Louis reads **0 - - - - 0 0**: five falling decades, then standing at about a third of its peak. In 1969 only about half of Pruitt-Igoe's flats were occupied. New York, which kept its streets of the kind Jacobs defended, stayed between 7.1 and 8.0 million in every census, never falling a full step: a city of standings.

The line forward

1. **The user-made city** runs from the capsule and the plug-in to the pattern language, and from there to the wiki and the platform city of chapter 18.

2. **Self-building** grows into the informal city: by 1990, some 650 million people lived in slums (chapter 18).
3. **The city for play**, New Babylon, is the first city designed for a life after work, the line that leads to chapter 20.
4. **The city in the head**, Lynch's image of the city, is the first step towards a city that is partly made of what its participants know and remember.

Sources for chapter 17

[Death and Life of Great American Cities](#) · [Jane Jacobs](#) · [Pruitt-Igoe](#) · [John F. C. Turner](#) · [The Image of the City](#) · [A Pattern Language](#) · [Metabolism](#) · [Nakagin Capsule Tower](#) · [Archigram](#) · [MoMA, Walking City on the Ocean](#) · [New Babylon](#) · [Invisible Cities](#) · [Playtime](#) · [St. Louis](#) · [Demographic history of New York City](#)

Chapter 18. The global and the smart city

1990 – 2026

The city and its idea

In this period the city became two things at once: a node of the world economy and a data platform. Both ideas promise a city steered from above, by capital or by sensors.

The global city. Saskia Sassen's *The Global City: New York, London, Tokyo* (1991) described cities as command posts of a world economy, closer to each other than to their own countries ([Wikipedia](#)).

The generic city. Rem Koolhaas asked in *S,M,L,XL* (1995): "Is the contemporary city like the contemporary airport — all the same?" ([text](#)). A city that can "produce a new identity every Monday morning" has no place it returns to.

The smart city. From 2000 the new city was drawn as a platform: sensors, data and a control room, usually on empty ground. The promises and what came of them:

Project	Promise	Status
NEOM, The Line	170 km of mirrored towers; 1.5 million people by 2030	Target cut to 100,000; work halted until after 2030 (May 2026)
Masdar City	Zero-carbon city for 45,000–50,000 by 2016	About 5,000 residents in 2023; pod transit stopped at pilot stage in 2010
Songdo	Smart business city on 600 ha of reclaimed land, from 2003	167,000 residents (2020); completion moved to 2030
Sidewalk Toronto	Google's sister company builds a data-driven district on 4.9 ha	Cancelled 7 May 2020, after protests over data privacy
Woven City	A living laboratory near Mount Fuji	Opened 25 September 2025; about 300 residents in phase 1

The builders

- **Rem Koolhaas** (born 1944), *Delirious New York* (1978), founder of OMA (1975), Pritzker Prize 2000 ([Wikipedia](#)). His office also co-authored Roma Continua.
- **Saskia Sassen**, who named the global city.
- **Foster + Partners** (Masdar), **Nikken Sekkei and BIG** (Woven City), **Sidewalk Labs** (Toronto): the builders of the platform city.
- **The Roma Continua team**, led by IT'S with OMA, OKRA, LGSMA and NET Engineering, which won *A Vision for Rome* in May 2026 with "recalibration, not expansion" ([Domus](#)).

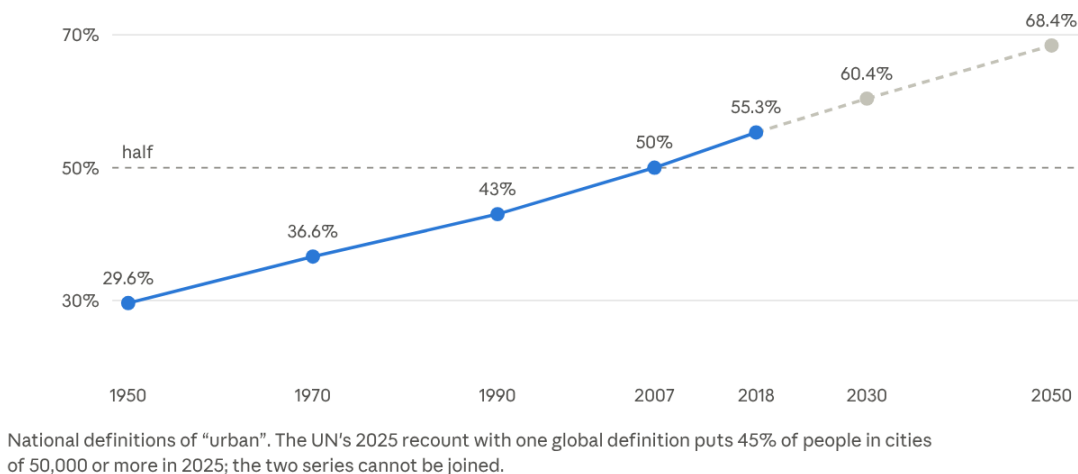
The art

- **Blade Runner** (1982): Los Angeles in November 2019 as "Hong Kong on a very bad day", drawn by Syd Mead ([Wikipedia](#)).
- **Andreas Gursky's** photographs — *99 Cent* (1999), the Chicago Board of Trade — the global city seen as an endless pattern ([Wikipedia](#)).
- **The Matrix** (1999): a city filmed in Sydney without landmarks, so that it could be any city, inside a simulation ([Wikipedia](#)).

The curve

The world became more urban than rural in 2007

Share of the world population living in urban areas, per cent, UN World Urbanization Prospects 2018; 2030 and 2050 projected



↗ UN DESA, World Urbanization Prospects 2018, Table I.3 · 7 points, 2 projected

The defining curve of the age is not one city but all of them. The urban share of humanity rose from 29.6 per cent in 1950 to 55.3 per cent in 2018 and crossed half in 2007 ([UN WUP 2018](#)). The number of cities of 10 million or more went from 1 or 2 in 1950 to 10 in 1990 and 33 in 2018; in 2025 the largest were

Jakarta (about 42 million), Dhaka (about 40 million) and Tokyo (33 million) ([UN, 2025](#)). In 2012, some 863 million people lived in slums.

In steps the share reads **+++0**, and the UN's own projections add **0+**: the great rise of urbanisation is levelling into a standing, just as Rome's population did after 1981. The smart cities read differently again: every one of them stands at a fraction of its plan. The growth happens in cities that already existed; the new cities placed on empty ground do not fill.

The line forward

1. **The platform city** shrinks to small test beds: Woven City with about 300 residents is what remains of the dream of a city run by data.
2. **Recalibration instead of expansion**: Roma Continua (2026) turns back to the existing city, the palimpsest of chapters 1 and 8.
3. **The definition of a city is itself in motion**: the UN's 2025 recount changed the curve by changing the word.
4. **The participant without a body** appears in this period as a stand-in: digital twins and simulated agents that represent people. Chapter 20 asks what happens when they take part in their own right.

Sources for chapter 18

[Saskia Sassen](#) · [Koolhaas, The Generic City](#) · [Rem Koolhaas](#) · [Semafor, NEOM](#) · [Masdar City](#) · [Songdo](#) · [Sidewalk Toronto](#) · [Toyota Woven City](#) · [Domus, Roma Continua](#) · [UN WUP 2018](#) · [UN WUP 2025](#) · [UN-Habitat 2014](#) · [Blade Runner](#) · [Andreas Gursky](#) · [The Matrix](#)

Chapter 19. All cities on one curve

Laid side by side, the curves of this book sort cities into three kinds: those that turn on the spot, those that stand, and those that were placed and never filled. Only the cities that can stand have lasted.

The words of all cities

Each step between two measured points is rising (+), standing (0) or falling (–), with the same rule throughout: a change of less than about 11 per cent counts as standing.

Ch.	City	Measured series	Word of steps	What it shows
1	Eridu	temple floor area, 9 levels	+ + 0 0 – + 0 0	grows in jumps, stands after each; one direct turn
2	Uruk	population, 4000–2800 BCE	+ + 0 +	a pause while writing multiplied
3	Harappa	built area by phase	0 +	long standing, then the planned city

Ch.	City	Measured series	Word of steps	What it shows
4	Thebes	population, 2000–1184 BCE	– + + + – +	turns on the spot with the court (Amarna)
5	Babylon	population (Modelski)	+ + 0	standing at 200,000 outlives the empire
6	Chang'an	population, 195 BCE–1300 CE	+ – + + – –	rises and falls with dynasties
7	Athens	adult male citizens	+ – + 0 –	stands near 30,000 after empire and plague
8	Rome	population in steps of 93.4 years	0 0 –×8 0 0 0 0 +×8	turns only through plateaus
9	Teotihuacan	population	+ + + + – –	a millennium of growth, a century of halving
10	Baghdad	population (compiled)	– + –	rises and falls with the caliphate
11	Florence, Venice	Black Death	–	one sharp fall; the recovery decides
12	Venice	population 1548–1785	0 0 0 0	two centuries of standing
13	Versailles	population 1643–1881	+ – + + – + –	follows the court, three direct falls
14	US utopias	communities founded per decade	+ + + + – – + 0 +	two waves of a movement
15	Chicago	census 1840–1950	+ + + + + + + + 0	pure growth, then the first standing
16	Brasília	census 1960–2022	+ + + + + 0	passes its plan, grows outside it
17	St Louis	census 1940–2020	0 – – – – 0 0	the emptied core city
18	World	urban share 1950–2018, projections	+ + + 0 (0 +)	the great rise levelling off

Five lines through 7,500 years

1. **Cities that serve one centre turn on the spot.** Thebes, Chang'an, Versailles and Baghdad have direct turns: a rise met at once by a fall, or the reverse. Each turn follows the court, the dynasty or the government arriving or leaving. A city made for one centre has no plateau of its own.
2. **Cities that last can stand.** Rome, Venice and Athens after the plague all show long standings. Rome turns only through them. The plateau is not stagnation: in Uruk it was the time writing multiplied sixteenfold; in Rome it was the standing city that kept the place alive for a thousand years.
3. **In lasting cities, a long rise ends in a standing.** Eridu after each jump, Uruk, Babylon, Chicago after 1930, Brasília after 2010, Rome after 1981, and the urban share of the whole world in the

UN's own projections. The exceptions are telling: in Teotihuacan, Chang'an, Thebes and Versailles a long rise ends in a direct fall. In the cities that lasted, the next state after growth is standing; in the cities that broke, there was none.

4. **Placed cities do not fill as drawn.** Amarna (abandoned within 15 years), the Round City of Baghdad (outgrown within 50), Palmanova (settled by pardoned criminals), Brasília (filled outside the plan), Masdar and The Line (a fraction of the target). Every city placed on empty ground in this book either emptied or grew somewhere else than planned.
5. **Falls come from the water and from the centre.** Rome lost its aqueducts in 537, Angkor its water system, Uruk its soil, Bruges its harbour. The other falls follow a court or a government leaving. No city in this book fell because it was too small.

A size that keeps returning

One number appears again and again as a standing level: about 30,000 people. Athens held about 30,000 citizens for a century; Memphis is estimated at about 30,000 for seven centuries; Amarna held some 30,000; medieval Rome lived with 20,000 to 35,000 for centuries; Howard drew the garden city for 32,000, and Letchworth reached about 34,000 a century later. It is the size at which a city has stood again and again, in very different times. This is an observation from the figures in this book, not a law; most of them are estimates.

How firm is this?

- Most series before 1800 are estimates, often from two compilers (Chandler, Modelski) who disagree. A different estimate can turn a 0 into a + or the reverse.
- The 11 per cent rule for standing is a choice. Rome's word holds between 7 and 20 per cent; other cities have not been tested that way.
- The cities were chosen for the history of the idea of the city, not as a sample. A real test would take a rule fixed in advance and apply it to every city with a measured series.

Chapter 20. The city of the future

The city of the future is not a new city on empty ground. Read from the curves of this book, it is an old city that has learned to stand, with many centres instead of one, and with participants who have no bodies alongside those who do. The first city, Eridu, already had such a participant at its centre.

The city and its idea

The proposal of this book has six parts, each taken from a line in chapter 19.

1. **Begin where a city already is.** Every city placed on empty ground in this book emptied or grew elsewhere than planned. The city of the future is written over an existing one, as Eridu was written over itself eighteen times. This book takes Rome as its ground: the one city that has passed through rise, fall and standing and is still there.
2. **Many centres, none of them a court.** Cities that served one centre turned on the spot when the centre moved. The future city is a mesh of units, each a crossing with its own water, work and

memory. Divide Rome's 2.75 million inhabitants into 81 such units and each holds about 34,000 people: the size at which cities in this book have stood again and again (chapter 19).

3. **Designed for standing.** The lasting cities turned only through a plateau. The future city treats standing as its normal state, not as failure: stable size, renewal in place, time for memory to grow, as writing grew in Uruk's pause.
4. **Water and infrastructure first.** The falls in this book came from the water and from the centre. Rome grew while its water loop was closed and fell when it was cut. Each unit closes its own water before anything else.
5. **Never complete.** Siena's unfinished cathedral wall still stands. The future city keeps an open edge on purpose: what does not close at one scale becomes the material of the next.
6. **Participants with and without bodies.** This is the one part that looks new, and it is the oldest of all.

The participants without bodies

Cities have always been shared with participants who had no bodies.

- **Eridu** was built as the house of Enki, the god of the deep water; the people were the second residents (chapter 1).
- **Rome** honoured the *genius* of the city and kept guardian spirits at three scales: the *lares* of the house, the *lares compitales* at each crossroads, and the guardians of the city itself. Augustus placed new shrines at the 265 crossroads, each tended by local officials ([Lares](#); [Genius loci](#)). Rome also practised *evocatio*: calling the guardian god out of an enemy city.
- **China** gave every walled city a city god, the *chenghuang*, who served beside the magistrate in a divine bureaucracy. The emperor could appoint city gods, and a city god who failed to bring rain could be punished ([Chenghuangshen](#)).
- **Japan** ties each place to its *ujigami*, the god of the place, and its parishioners; since the 1960s some apartment complexes have tried to revive that tie ([Ujigami](#)).

The modern city has produced stand-ins of a new kind. Virtual Singapore (2014–2022) is a full digital twin of a city for planning and flood simulation ([Wikipedia](#)). In 2025 researchers simulated city life with tens of thousands of language-model agents, each with beliefs, goals and a memory of places ([CitySim](#), [arXiv](#)). These agents still stand in for people; they are not participants in their own right.

The step the future city takes is from stand-in to participant. Rome's three scales give the form: a participant without a body for each house, each crossing and the city as a whole, with a known place, a known task and — as with the Chinese city gods — accountability to the others.

The builders

- **Pierre Teilhard de Chardin** described the *noosphere* from 1922: a layer of interacting minds around the earth ([Noosphere](#)).

- **Peter Russell** named the *global brain* in his book of 1982–83 (The Awakening Earth in Britain, The Global Brain in the US), and **Francis Heylighen** made it a research field, from the Principia Cybernetica Project to the Global Brain Institute in Brussels (2012) ([Global brain](#)).
- **William J. Mitchell**, *City of Bits* (1995): a city of networks not tied to place, with buildings as interfaces ([review](#)).
- **Benjamin Bratton**, *The Stack* (2015): six layers from Earth to User, where the User layer holds "humans (and nonhumans)" ([Wikipedia](#)).
- **Christian Norberg-Schulz**, *Genius Loci* (1979), who brought the spirit of place back into architecture ([Wikipedia](#)).
- **The counter-voice**: Shannon Mattern, *A City Is Not a Computer* (2021), who warns against treating the city as a machine for data and points to libraries, maintenance and local knowledge as the city's real intelligence ([New Books Network](#)). The future city of this book agrees: its participants without bodies are not a control room.

The art

- **Calvino's *Invisible Cities*** (1972): every city described is also one hidden city.
- **Constant's *New Babylon*** (1959–74): the first city drawn for a life after work.
- ***The Matrix*** (1999): the city as simulation, the warning version.
- **Lorenzetti's *Good Government*** (1338–39): still the best picture of what any city, with or without bodies, is for.

The curve

Rome stands now. In steps of 31 years since 1870 its population reads + + + + 0, and the last three steps do not close; on the axis of bodies alone they close only with a fall. Italy's statisticians already expect the country to shrink by 2050.

The proposal of this book is to let that window close in more than one direction. On the axis of bodies, matter and energy, the city takes its –: fewer people, less material, less fuel, without breaking. On other axes it takes its +: more participants without bodies, more memory kept in the city, more crossings between the units. Then the city closes its window without collapse, and the standing that follows is a standing the city chose — the kind that, in this book, has always been the way a great city lasts.

The line forward

The open questions are where the next book begins:

1. Which measures can show a city's state on the axes that are not bodies: memory, crossings, participants without bodies?
2. What does a participant without a body owe the city, and what does the city owe it?
3. Can the 81 units of Rome be drawn on the real ground, along its water, so that each closes its own loop?

4. Can the rule for reading these curves be fixed in advance and tested on every city with a measured history?

Sources for chapters 19 and 20

[Lares](#) · [Genius loci](#) · [Tutelary deity](#) · [Chenghuangshen](#) · [Ujigami](#) · [Enki](#) · [Virtual Singapore](#) · [Batty, Digital twins in city planning \(2024\)](#) · [CitySim \(2025\)](#) · [UN-Habitat, AI & Cities](#) · [Noosphere](#) · [Global brain](#) · [Francis Heylighen](#) · [Mitchell, City of Bits \(review\)](#) · [Bratton, The Stack](#) · [Norberg-Schulz](#) · [Mattern, A City Is Not a Computer](#) · [Heitlinger and Comber, more-than-human smart city \(2018\)](#) · Konstapel, J. (2026), [Curves in the Vacuum.Net](#) and *The Path of Rome*.