## General

The Bronze Age was a historical period lasting from approximately to  BC. It was characterized by the use of bronze, the use of writing in some areas, and other features of early urban civilization. The Bronze Age is the middle principal period of the three-age system, between the Stone and Iron Ages. Worldwide, the Bronze Age generally followed the Neolithic period, with the Chalcolithic serving as a transition. The Bronze Age may have included a widespread societal collapse between c.  and  BC, known as the Late Bronze Age collapse, although the extent of this is debated.

An ancient civilization is deemed to be part of the Bronze Age if it either produced bronze by smelting its own copper and alloying it with tin, arsenic, or other metals, or traded other items for bronze from producing areas elsewhere.

Bronze Age cultures were the first to develop writing. According to archaeological evidence, cultures in Mesopotamia, which used cuneiform script, and Egypt, which used hieroglyphs, developed the earliest practical writing systems.

Metal use

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Further information: Tin sources and trade in ancient times

Bronze Age civilizations gained a technological advantage due to bronze's harder and more durable properties than other metals available at the time. While terrestrial iron is naturally abundant, the higher temperature required for smelting, , °C (, °F), in addition to the greater difficulty of working with it, placed it out of reach of common use until the end of the second millennium BC.[citation needed] Tin's lower melting point of  °C ( °F) and copper's moderate melting point of , °C (, °F) placed both these metals within the capabilities of Neolithic pottery kilns,[citation needed] which date back to , BC and were able to produce temperatures of at least  °C (, °F). Copper and tin ores are rare since there were no tin bronzes in West Asia before trading in bronze began in the rd millennium BC.[citation needed]

Diffusion of metallurgy in Europe and Asia Minor—the darkest areas are the oldest.

The Bronze Age is characterized by the widespread use of bronze (even if only by elites in the early years), though the introduction and development of bronze technology were not universally synchronous. Tin bronze technology requires systematic techniques: tin must be mined (mainly as the tin ore cassiterite) and smelted separately, then added to hot copper to make bronze alloy. The Bronze Age was a time of extensive use of metals and the development of trade networks. A report suggests that the earliest tin-alloy bronze was a foil dated to the mid-th millennium BC from a Vinča culture site in Pločnik, Serbia, although this culture is not conventionally considered part of the Bronze Age; however, the dating of the foil has been disputed.

Near East

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Main article: Ancient Near East

West Asia and the Near East were the first regions to enter the Bronze Age, beginning with the rise of the Mesopotamian civilization of Sumer in the mid-th millennium BC. Cultures in the ancient Near East practised intensive year-round agriculture; developed writing systems; invented the potter's wheel, created centralized governments (usually in the form of hereditary monarchies), written law codes, city-states and nation-states and empires; embarked on advanced architectural projects; and introduced social stratification, economic and civil administration, slavery, and practised organized warfare, medicine, and religion. Societies in the region laid the foundations for astronomy, mathematics, and astrology.

Hittite bronze tablet from Çorum-Boğazköy dating from BC, Museum of Anatolian Civilizations, Ankara

The Hittite Empire was established during the th century BC in Hattusa, northern Anatolia. At its height in the th century BC, the Hittite Kingdom encompassed central Anatolia, southwestern Syria as far as Ugarit, and upper Mesopotamia. After BC, amid general turmoil in the Levant, which is conjectured to have been associated with the sudden arrival of the Sea Peoples. The kingdom disintegrated into several independent "Neo-Hittite" city-states, some of which survived into the th century BC.

Arzawa in Western Anatolia, during the second half of the second millennium BC, likely extended along southern Anatolia in a belt from near the Turkish Lakes Region to the Aegean coast. Arzawa was the western neighbor of the Middle and New Hittite Kingdoms, at times a rival and, at other times, a vassal.

The Assuwa league was a confederation of states in western Anatolia defeated by the Hittites under the earlier Tudhaliya I, around BC. Arzawa has been associated with the much more obscure Assuwa generally located to its north. It probably bordered it, and may

In Ancient Egypt, the Bronze Age began in the Protodynastic Period, c.  BC. The archaic Early Bronze Age of Egypt, known as the Early Dynastic Period of Egypt, immediately followed the unification of Lower and Upper Egypt, c.  BC. It is generally taken to include the First and Second Dynasties, lasting from the Protodynastic Period until about BC, or the beginning of the Old Kingdom. With the First Dynasty, the capital moved from Abydos to Memphis with a unified Egypt ruled by an Egyptian god-king. Abydos remained the major holy land in the south. The hallmarks of ancient Egyptian civilization, such as art, architecture, and religion, took shape in the Early Dynastic Period. Memphis in the Early Bronze Age was the largest city of the time. The Old Kingdom of the regional Bronze Age is the name given to the period in the rd millennium BC when Egyptian civilization attained its first continuous peak of complexity and achievement—the first of three "Kingdom" periods which marked the high points of civilization in the lower Nile Valley (the others being the Middle Kingdom and the New Kingdom).

The First Intermediate Period of Egypt, often described as a "dark period" in ancient Egyptian history, spanned about years after the end of the Old Kingdom from about to BC. Very little monumental evidence survives from this period, especially from the early part of it. The First Intermediate Period was a dynamic time when the rule of Egypt was roughly divided between two areas: Heracleopolis in Lower Egypt and Thebes in Upper Egypt. These two kingdoms eventually came into conflict, and the Theban kings conquered the north, reunifying Egypt under a single ruler during the second part of the Eleventh Dynasty.

Nubia

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The Bronze Age in Nubia started as early as BC. Egyptians introduced copper smelting to the Nubian city of Meroë in modern-day Sudan around BC. A furnace for bronze casting found in Kerma dated back to – BC.

Middle Bronze dynasties

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The Middle Kingdom of Egypt lasted from to BC. During this period, the Osiris funerary cult rose to dominate Egyptian popular religion. The period comprises two phases: the th Dynasty, which ruled from Thebes, and the th and th Dynasties, centred on el-Lisht. The unified kingdom was previously considered to comprise the th and th Dynasties, but historians now consider at least part of the th Dynasty to have belonged to the Middle Kingdom.

During the Second Intermediate Period, Ancient Egypt fell into disarray a second time between the end of the Middle Kingdom and the start of the New Kingdom, best known for the Hyksos, whose reign comprised the th and th dynasties. The Hyksos first appeared in Egypt during the th Dynasty, began their climb to power in the th Dynasty, and emerged from the Second Intermediate Period in control of Avaris and the Delta. By the th Dynasty, they ruled lower Egypt, and they were expelled at the end of the th Dynasty.

Late Bronze dynasties

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The New Kingdom of Egypt, also referred to as the Egyptian Empire, lasted from the th to the th century BC. The New Kingdom followed the Second Intermediate Period and was succeeded by the Third Intermediate Period. It was Egypt's most prosperous time and marked the peak of Egypt's power. The later New Kingdom, i.e. the th and th Dynasties (– BC), is also known as the Ramesside period, after the eleven pharaohs who took the name of Ramesses.

Iranian plateau

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Late rd Millennium BC silver cup from Marvdasht, Fars, with linear-Elamite inscription

Further information: Iranian plateau

Elam was a pre-Iranian ancient civilization located east of Mesopotamia. In the Old Elamite period (Middle Bronze Age), Elam consisted of kingdoms on the Iranian plateau, centred in Anshan. From the mid-nd millennium BC, Elam was centred in Susa in the Khuzestan lowlands. Its culture played a crucial role in both the Gutian Empire and the Iranian Achaemenid dynasty that succeeded it.

The Oxus civilization was a Bronze Age Central Asian culture dated to c. – BC and centred on the upper Amu Darya (Oxus). In the Early Bronze Age, the culture of the Kopet Dag oases and Altyndepe developed a proto-urban society. This corresponds to level IV at Namazga-Tepe. Altyndepe was a major centre even then. Pottery was wheel-turned. Grapes were grown. The height of this urban development was reached in the Middle Bronze Age c.  BC, corresponding to level V at Namazga-Depe. This Bronze Age culture is called the Bactria–Margiana Archaeological Complex (BMAC).

The Kulli culture, similar to that of the Indus Valley civilisation, was located in southern Balochistan (Gedrosia) c. – BC. The economy was agricultural. Dams were found in several places, providing evidence for a highly developed water management system.

Master of Animals in chlorite, Jiroft culture, c.  BC, Bronze Age I, National Museum of Iran

Konar Sandal is associated with the hypothesized "Jiroft culture", a rd-millennium-BC culture postulated based on a collection of artefacts confiscated in .

Levant

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Chalcolithic copper mine in Timna Valley, Negev Desert, Israel

Further information: History of the ancient Levant § Bronze Age, Canaan, Prehistory of the Levant, and List of archaeological periods (Levant)

In modern scholarship, the chronology of the Bronze Age Levant is divided into:

Early/Proto Syrian; corresponding to the Early Bronze Age.

Old Syrian; corresponding to the Middle Bronze Age.

Middle Syrian; corresponding to the Late Bronze Age.

The term Neo-Syria is used to designate the early Iron Age.

The old Syrian period was dominated by the Eblaite first kingdom, Nagar and the Mariote second kingdom. The Akkadians conquered large areas of the Levant and were followed by the Amorite kingdoms, c. – BC, which arose in Mari, Yamhad, Qatna, and Assyria. From the th century BC onward, the term Amurru is usually applied to the region extending north of Canaan as far as Kadesh on the Orontes River.

The earliest-known contact of Ugarit with Egypt (and the first exact dating of Ugaritic civilization) comes from a carnelian bead identified with the Middle Kingdom pharaoh Senusret I, dating back to – BC. A stela and a statuette of the Egyptian pharaohs Senusret III and Amenemhet III have also been found. However, it is unclear when they got to Ugarit. In the Amarna letters, messages from Ugarit c.  BC written by Ammittamru I, Niqmaddu II, and his queen have been discovered. From the th to the th century BC, Ugarit remained in constant contact with Egypt and Cyprus (Alashiya).

Mitanni was a loosely organized state in northern Syria and south-east Anatolia from c. – BC. Founded by an Indo-Aryan ruling class that governed a predominantly Hurrian population, Mitanni came to be a regional power after the Hittite destruction of Kassite Babylon created a power vacuum in Mesopotamia. At its beginning, Mitanni's major rival was Egypt under the Thutmosids. However, with the ascent of the Hittite empire, Mitanni and Egypt allied to protect their mutual interests from the threat of Hittite domination. At the height of its power during the th century BC, Mitanni had outposts centred on its capital, Washukanni, which archaeologists have located on the headwaters of the Khabur River. Eventually, Mitanni succumbed to the Hittites and later Assyrian attacks, eventually being reduced to a province of the Middle Assyrian Empire.

The Israelites were an ancient Semitic-speaking people of the Ancient Near East who inhabited part of Canaan during the tribal and monarchic periods (th to th centuries BC), and lived in the region in smaller numbers after the fall of the monarchy. The name "Israel" first appears c.  BC, at the end of the Late Bronze Age and the very beginning of the Iron Age, on the Merneptah Stele raised by the Egyptian pharaoh Merneptah.

The Arameans were a Northwest Semitic semi-nomadic pastoral people who originated in what is now modern Syria (Biblical Aram) during the Late Bronze and early Iron Age. Large groups migrated to Mesopotamia, where they intermingled with the native Akkadian (Assyrian and Babylonian) population. The Aramaeans never had a unified empire; they were divided into independent kingdoms all across the Near East. After the Bronze Age collapse, their political influence was confined to Syro-Hittite states, which were entirely absorbed into the Neo-Assyrian Empire by the th century BC.

Mesopotamia

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Main article: History of Mesopotamia

The Mesopotamian Bronze Age began about BC and ended with the Kassite period (c.  BC – c.  BC). The usual tripartite division into an Early, Middle and Late Bronze Age is not used in the context of Mesopotamia. Instead, a division primarily based on art and historical characteristics is more common.

The cities of the Ancient Near East housed several tens of thousands of people. Ur, Kish, Isin, Larsa, and Nippur in the Middle Bronze Age and Babylon, Calah, and Assur in the Late Bronze Age similarly had large populations. The Akkadian Empire (– BC) became the dominant power in the region. After its fall, the Sumerians enjoyed a renaissance with the Neo-Sumerian Empire. Assyria, along with the Old Assyrian Empire (c. – BC), became a regional power under the Amorite king Shamshi-Adad I. The earliest mention of Babylon (then a small administrative town) appears on a tablet from the reign of Sargon of Akkad in the rd century BC. The Amorite dynasty established the city-state of Babylon in the th century BC. Over years later, it briefly took over the other city-states and formed the short-lived First Babylonian Empire during what is also called the Old Babylonian Period.

Akkad, Assyria, and Babylonia all used the written East Semitic Akkadian language for official use and as a spoken language. By that time, the Sumerian language was no longer spoken, but was still in religious use in Assyria and Babylonia, and would remain so until the st century AD. The Akkadian and Sumerian traditions played a major role in later Assyrian and Babylonian culture. Despite this, Babylonia, unlike the more militarily powerful Assyria, was founded by non-native Amorites and often ruled by other non-indigenous peoples such as the Kassites, Aramaeans and Chaldeans, as well as by its Assyrian neighbours.

Asia

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Map of the world in BC

Central Asia

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Agropastoralism

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For many decades, scholars made superficial reference to Central Asia as the "pastoral realm" or alternatively, the "nomadic world", in what researchers have come to call the "Central Asian void": a ,-year span that was neglected in studies of the origins of agriculture. Foothill regions and glacial melt streams supported Bronze Age agropastoralists who developed complex east–west trade routes between Central Asia and China that introduced wheat and barley to China and millet to Central Asia.

Bactria–Margiana Archaeological Complex

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Main article: Bactria–Margiana Archaeological Complex

The Bactria–Margiana Archaeological Complex (BMAC), also known as the Oxus civilization, was a Bronze Age civilization in Central Asia, dated to c. – BC, located in present-day northern Afghanistan, eastern Turkmenistan, southern Uzbekistan and western Tajikistan, centred on the upper Amu Darya (Oxus River). Its sites were discovered and named by the Soviet archaeologist Viktor Sarianidi . Bactria was the Greek name for the area of Bactra (modern Balkh), in what is now northern Afghanistan, and Margiana was the Greek name for the Persian satrapy of Marguš, the capital of which was Merv, in modern-day southeastern Turkmenistan.

A wealth of information indicates that the BMAC had close international relations with the Indus Valley, the Iranian plateau, and possibly even indirectly with Mesopotamia; all civilizations were very familiar with lost wax casting.

According to a study, the BMAC was not a primary contributor to later South-Asian genetics.

Seima-Turbino phenomenon

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Main article: Seima-Turbino phenomenon

The Altai Mountains in what is now southern Russia and central Mongolia have been identified as the point of origin of a cultural enigma termed the Seima-Turbino Phenomenon. It is conjectured that changes in climate in this region around BC and the ensuing ecological, economic, and political changes triggered a rapid and massive migration westward into northeast Europe, eastward into China, and southward into Vietnam and Thailand  across a frontier of some , mi (, km). This migration took place in just five to six generations and led to peoples from Finland in the west to Thailand in the east employing the same metalworking technology and, in some areas, horse breeding and riding. However, recent genetic testings of sites in south Siberia and Kazakhstan (Andronovo horizon) would rather support spreading of the bronze technology via Indo-European migrations eastwards, as this technology had been well known for quite a while in western regions.

It is further conjectured that the same migrations spread the Uralic group of languages across Europe and Asia: some languages of this group still exist, including Hungarian, Finnish and Estonian.

East Asia

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China

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Main articles: Erlitou culture, Shang dynasty, Sanxingdui, and Lower Xiajiadian culture

A Shang dynasty two-handled bronze gefuding gui (– BC)Spring and Autumn period pu bronze vessel with interlaced dragon design (c. to BC)

In China, the earliest bronze artefacts have been found in the Majiayao culture site (between and BC).

The term "Bronze Age" has been transferred to the archaeology of China from that of Western Eurasia, and there is no consensus or universally used convention delimiting the "Bronze Age" in the context of Chinese prehistory. "Early Bronze Age" in China is sometimes taken as equivalent to the "Shang dynasty" period (th to th centuries BC), and the "Later Bronze Age" as equivalent to the "Zhou dynasty" period (th to rd centuries BC, from the th century, also called "Iron Age"), although there is an argument to be made that the "Bronze Age" proper never ended in China, as there is no recognizable transition to an "Iron Age". Significantly, together with the jade art that precedes it, bronze was seen as a "fine" material for ritual art when compared with iron or stone.

Bronze metallurgy in China originated in what is referred to as the Erlitou (Wade–Giles: Erh-li-t'ou) period, which some historians argue places it within the Shang dynasty. Others believe the Erlitou sites belong to the preceding Xia (Wade–Giles: Hsia) dynasty. The U.S. National Gallery of Art defines the Chinese Bronze Age as the "period between about BC and BC", a period that begins with the Erlitou culture and ends abruptly with the disintegration of Western Zhou rule.

There is reason to believe that bronze work developed inside of China apart from outside influence. However, the discovery of Europoid mummies in Xinjiang has caused some archaeologists such as Johan Gunnar Andersson, Jan Romgard, and An Zhimin to suggest a possible route of transmission from the West eastwards. According to An Zhimin, "It can be imagined that initially, bronze and iron technology took its rise in West Asia, first influenced the Xinjiang region, and then reached the Yellow River valley, providing external impetus for the rise of the Shang and Zhou civilizations." According to Jan Romgard, "bronze and iron tools seem to have traveled from west to east as well as the use of wheeled wagons and the domestication of the horse." There are also possible links to Seima-Turbino culture, "a transcultural complex across northern Eurasia," the Eurasian steppe, and the Urals. However, the oldest bronze objects found in China so far were discovered at the Majiayao site in Gansu rather than at Xinjiang.

The Shang dynasty (also known as the Yin dynasty) of the Yellow River Valley rose to power after the Xia dynasty around BC. While some direct information about the Shang dynasty comes from Shang-era inscriptions on bronze artefacts, most comes from oracle bones—turtle shells, cattle scapulae, or other bones—which bear glyphs that form the first significant corpus of recorded Chinese characters.

The production of Erlitou in Henan represents the earliest large-scale metallurgy industry in the Central Plains of China. The influence of the Saima-Turbino metalworking tradition from the north is supported by a series of recent discoveries in China of many unique perforated spearheads with downward hooks and small loops on the same or opposite side of the socket, which could be associated with the Seima-Turbino visual vocabulary of southern Siberia. The metallurgical centres of northwestern China, especially Qijia in Gansu and Kexingzhuang culture in Shaanxi, played an intermediary role in this process.

Iron has been found from the Zhou dynasty, but its use was minimal. Chinese literature dating to the th century BC attests to knowledge of iron smelting, yet bronze continues to occupy the seat of significance in the archaeological and historical record for some time after this. Historian W.C. White argues that iron did not supplant bronze "at any period before the end of the Zhou dynasty ( BC)" and that bronze vessels make up the majority of metal vessels through the Later Han period, or to BC.

The Chinese bronze artefacts generally are either utilitarian, like spear points or adze heads, or "ritual bronzes", which are more elaborate versions in precious materials of everyday vessels, as well as tools and weapons. Examples are the numerous large sacrificial tripods known as dings in Chinese; there are many other distinct shapes. Surviving identified Chinese ritual bronzes tend to be highly decorated, often with the taotie motif, which involves highly stylised animal faces. These appear in three main motif types: those of demons, symbolic animals, and abstract symbols. Many large bronzes also bear cast inscriptions that are the great bulk of the surviving body of early Chinese writing and have helped historians and archaeologists piece together the history of China, especially during the Zhou dynasty (– BC).

The bronzes of the Western Zhou dynasty document large portions of history not found in the extant texts that were often composed by persons of varying rank and possibly even social class. Further, the medium of cast bronze lends the record they preserve a permanence not enjoyed by manuscripts. These inscriptions can commonly be subdivided into four parts: a reference to the date and place, the naming of the event commemorated, the list of gifts given to the artisan in exchange for the bronze, and a dedication. The relative points of reference these vessels provide have enabled historians to place most of the vessels within a certain time frame of the Western Zhou period, allowing them to trace the evolution of the vessels and the events they record.

Japan

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Main article: Yayoi period

nd century BC Yayoi dōtaku bronze bellnd-century BC Yayoi bronze spearhead

The Japanese archipelago saw the introduction of bronze during the beginning of the Early Yayoi period (≈ BC), which saw the introduction of metalworking and agricultural practices brought in by settlers arriving from the continent. Bronze and iron smelting techniques spread to the Japanese archipelago through contact with other ancient East Asian civilizations, particularly immigration and trade from the ancient Korean peninsula, and ancient mainland China. Iron was mainly used for agricultural and other tools, whereas ritual and ceremonial artefacts were mainly made of bronze.[clarification needed]

Korea

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Main articles: Gojoseon and Mumun pottery period

Bronze artefacts from Daegok-ri, Hwasun, Korea

On the Korean peninsula, the Bronze Age began around – BC. Initially centred around Liaoning and southern Manchuria, Korean Bronze Age culture exhibits unique typology and styles, especially in ritual objects.

The Mumun pottery period is named after the Korean name for undecorated or plain cooking and storage vessels that form a large part of the pottery assemblage over the entire length of the period, but especially – BC. The Mumun period is known for the origins of intensive agriculture and complex societies in both the Korean Peninsula and the Japanese Archipelago.

The Middle Mumun pottery period culture of the southern Korean Peninsula gradually adopted bronze production (c. –? BC) after a period when Liaoning-style bronze daggers and other bronze artefacts were exchanged as far as the interior part of the Southern Peninsula (c. – BC). The bronze daggers lent prestige and authority to the personages who wielded and were buried with them in high-status megalithic burials at south-coastal centres such as the Igeum-dong site. Bronze was an important element in ceremonies and for mortuary offerings until BC.

Indus Valley

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Main article: Indus Valley Civilisation

Dancing girl of Mohenjo-daro, c.  BC

The Bronze Age on the Indian subcontinent began around BC with the beginning of the Indus Valley Civilization. Inhabitants of the Indus Valley, the Harappans, developed new techniques in metallurgy and produced copper, bronze, lead, and tin. The Late Harappan culture, which dates from to BC, overlapped the transition from the Bronze Age to the Iron Age; thus it is difficult to date this transition accurately. It has been claimed that a ,-year-old copper amulet manufactured in Mehrgarh in the shape of a wheel spoke is the earliest example of lost-wax casting in the world.

The civilization's cities were noted for their urban planning, baked brick houses, elaborate drainage systems, water supply systems, clusters of large non-residential buildings, and new techniques in handicraft (carnelian products, seal carving) and metallurgy (copper, bronze, lead, and tin). The large cities of Mohenjo-daro and Harappa very likely grew to contain between , and , people, and the civilization itself during its florescence may have contained between one and five million people.

Southeast Asia

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The Vilabouly Complex in Laos is a significant archaeological site for dating the origin of bronze metallurgy in Southeast Asia.

Thailand

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In Ban Chiang, Thailand, (Southeast Asia) bronze artefacts have been discovered dating to BC. However, according to the radiocarbon dating on the human and pig bones in Ban Chiang, some scholars propose that the initial Bronze Age in Ban Chiang was in the late nd millennium. In Nyaunggan, Burma, bronze tools have been excavated along with ceramics and stone artefacts. Dating is still currently broad (– BC). Ban Non Wat, excavated by Charles Higham, was a rich site with over graves excavated that gleaned many complex bronze items that may have had social value connected to them.

Ban Chiang, however, is the most thoroughly documented site and has the clearest evidence of metallurgy when in Southeast Asia. With a rough date range from the late rd millennium BC to the first millennium AD, this site alone has artefacts such as burial pottery (dating from to BC) and fragments of bronze and copper-base bangles. This technology suggested on-site casting from the very beginning. The on-site casting supports the theory that bronze was first introduced in Southeast Asia from a different country. Some scholars believe that copper-based metallurgy was disseminated from northwest and central China south and southwest via areas such as Guangdong province and Yunnan province and finally into southeast Asia around BC. Archaeology also suggests that Bronze Age metallurgy may not have been as significant a catalyst in social stratification and warfare in Southeast Asia as in other regions, and that social distribution shifted away from chiefdom-states to a heterarchical network. Data analyses of sites such as Ban Lum Khao, Ban Na Di, Non-Nok Tha, Khok Phanom Di, and Nong Nor have consistently led researchers to conclude that there was no entrenched hierarchy.

Vietnam

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Further information: Dong Son culture

Dating back to the Neolithic Age, the first bronze drums, called the Dong Son drums, were uncovered in and around the Red River Delta regions of Northern Vietnam and Southern China. These relate to the Dong Son culture of Vietnam.

Archaeological research in Northern Vietnam indicates an increase in rates of infectious disease following the advent of metallurgy; skeletal fragments in sites dating to the early and mid-Bronze Age evidence a greater proportion of lesions than in sites of earlier periods. There are a few possible implications of this. One is the increased contact with bacterial and/or fungal pathogens due to increased population density and land clearing/cultivation. The other one is decreased levels of immunocompetence in the Metal Age due to changes in diet caused by agriculture. The last is that there may have been an emergence of infectious diseases that evolved into a more virulent form in the metal period.

Radivojevic et al. reported the discovery of a tin bronze foil from the Pločnik archaeological site securely dated to c. BC as well as other artefacts from Serbia and Bulgaria dated to before BC, showing that early tin bronze was more common than previously thought and developed independently in Europe years before the first tin bronze alloys in the Near East. The production of complex tin bronzes lasted for about years in the Balkans. The authors reported that evidence for the production of such complex bronzes disappears at the end of the th millennium, coinciding with the "collapse of large cultural complexes in north-eastern Bulgaria and Thrace in the late fifth millennium BC". Tin bronzes using cassiterite tin were reintroduced to the area some years later.

The oldest golden artefacts in the world ( – BC) were found in the Necropolis of Varna. These artefacts are on display in the Varna Archaeological Museum

The Dabene Treasure was unearthed from to near Karlovo, Plovdiv Province, central Bulgaria. The whole treasure consists of , gold jewellery items from to carats. The most important of them was a dagger made of gold and platinum with an unusual edge. The treasure was dated to the end of the rd millennium BC. Scientists suggest that the Karlovo valley used to be a major crafts centre that exported golden jewellery all over Europe. It is considered one of the largest prehistoric golden treasures in the world.

Aegean

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Main article: Aegean civilization

Gold 'Mask of Agamemnon' produced during the Mycenaean civilization, from Mycenae, Greece, BC

The Aegean Bronze Age began around BC, when civilizations first established a far-ranging trade network. This network imported tin and charcoal to Cyprus, where copper was mined and alloyed with tin to produce bronze. Bronze objects were then exported far and wide and supported the trade. Isotopic analysis of tin in some Mediterranean bronze artefacts suggests that they may have originated from Great Britain.

Knowledge of navigation was well-developed by this time and reached a peak of skill not exceeded (except perhaps by Polynesian sailors) until when the invention of the chronometer enabled the precise determination of longitude.

The Minoan civilization based in Knossos on the island of Crete appears to have coordinated and defended its Bronze Age trade. Ancient empires valued luxury goods in contrast to staple foods, leading to famine.

Aegean collapse

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Main articles: Bronze Age collapse and Greek Dark Ages

Invasions, destruction and possible population movements during the collapse of the Bronze Age, c.  BC

Bronze Age collapse theories have described aspects of the end of the Bronze Age in this region. At the end of the Bronze Age in the Aegean region, the Mycenaean administration of the regional trade empire followed the decline of Minoan primacy. Several Minoan client states lost much of their population to famine and pestilence. This would indicate that the trade network may have failed, preventing the trade that would previously have relieved such famines and prevented illness caused by malnutrition. It is also known that in this era, the breadbasket of the Minoan empire—the area north of the Black Sea—also suddenly lost much of its population and thus probably some capacity to cultivate crops. Drought and famine in Anatolia may have also led to the Aegean collapse by disrupting trade networks, therefore preventing the Aegean from accessing bronze and luxury goods.

The Aegean collapse has been attributed to the exhaustion of the Cypriot forests causing the end of the bronze trade. These forests are known to have existed in later times, and experiments have shown that charcoal production on the scale necessary for the bronze production of the late Bronze Age would have exhausted them in less than fifty years.

The Aegean collapse has also been attributed to the fact that as iron tools became more common, the main justification for the tin trade ended, and that trade network ceased to function as it did formerly. The colonies of the Minoan empire then suffered drought, famine, war, or some combination of the three, and had no access to the distant resources of an empire by which they could easily recover.

The Thera eruption occurred c.  BC,  km ( mi) north of Crete. Speculation includes that a tsunami from Thera (more commonly known today as Santorini) destroyed Cretan cities. A tsunami may have destroyed the Cretan navy in its home harbour, which then lost crucial naval battles; so that in the LMIB/LMII event (c.  BC) the cities of Crete burned and the Mycenaean civilization took Knossos over. If the eruption occurred in the late th century BC (as most chronologists now believe) then its immediate effects belong to the Middle to Late Bronze Age transition, and not to the end of the Late Bronze Age, but it could have triggered the instability that led to the collapse first of Knossos and then of Bronze Age society overall.[citation needed] One such theory highlights the role of Cretan expertise in administering the empire, post-Thera. If this expertise was concentrated in Crete, then the Mycenaeans may have made political and commercial mistakes in administering the Cretan empire.[citation needed]

Archaeological findings, including some on the island of Thera, suggest that the centre of the Minoan civilization at the time of the eruption was actually on Thera rather than on Crete. According to this theory, the catastrophic loss of the political, administrative and economic centre due to the eruption, as well as the damage wrought by the tsunami to the coastal towns and villages of Crete precipitated the decline of the Minoans. A weakened political entity with a reduced economic and military capability and fabled riches would have then been more vulnerable to conquest. Indeed, the Santorini eruption is usually dated to c.  BC, while the Mycenaean Greeks first enter the historical record a few decades later, c.  BC.[citation needed] The later Mycenaean assaults on Crete (c.  BC) and Troy (c.  BC) would have been a continuation of the steady encroachment of the Greeks upon the weakened Minoan world.[citation needed]

Central Europe

[edit]

Nebra sky disc, Aunjetitz culture, Germany, – BC

In Central Europe, the early Bronze Age Unetice culture (– BC) includes numerous smaller groups like the Straubing, Adlerberg and Hatvan cultures. Some very rich burials, such as the one located at Leubingen with grave gifts crafted from gold, point to an increase of social stratification already present in the Unetice culture. All in all, cemeteries of this period are small and rare. The Unetice culture was followed by the middle Bronze Age (– BC) tumulus culture, characterized by inhumation burials in tumuli (barrows). In the eastern Hungarian Körös tributaries, the early Bronze Age first saw the introduction of the Mako culture, followed by the Otomani and Gyulavarsand cultures.

The late Bronze Age Urnfield culture (– BC) was characterized by cremation burials. It included the Lusatian culture in eastern Germany and Poland (– BC) that continues into the Iron Age. The Central European Bronze Age was followed by the Iron Age Hallstatt culture (– BC).

Important sites include:

Biskupin (Poland)

Nebra (Germany)

Vráble (Slovakia)

Zug-Sumpf, Zug, Switzerland

German prehistorian Paul Reinecke described Bronze A (Bz A) period (– BC: triangular daggers, flat axes, stone wrist-guards, flint arrowheads) and Bronze A (Bz A) period (– BC: daggers with metal hilt, flanged axes, halberds, pins with perforated spherical heads, solid bracelets) and phases Hallstatt A and B (Ha A and B).

Southern Europe

[edit]

Nuragic figurine, Sardinia, c.  BC

The Apennine culture (also called Italian Bronze Age) is a technology complex of central and southern Italy spanning the Chalcolithic and Bronze Age proper. The Camuni were an ancient people of uncertain origin (according to Pliny the Elder, they were Euganei; according to Strabo, they were Rhaetians) who lived in Val Camonica—in what is now northern Lombardy—during the Iron Age, although groups of hunters, shepherds, and farmers are known to have lived in the area since the Neolithic.

Located in Sardinia and Corsica, the Nuragic civilization lasted from the early Bronze Age (th century BC) to the nd century AD, when the islands were already Romanized. They take their name from the characteristic Nuragic towers, which evolved from the pre-existing megalithic culture, which built dolmens and menhirs.

Bronze votive boat model, Nuragic culture, Sardinia, c.  BC

The towers are unanimously considered the best-preserved and largest megalithic remains in Europe. Their purpose is still debated: some scholars consider them monumental tombs, others as Houses of the Giants, other as fortresses, ovens for metal fusion, prisons, or, finally, temples for a solar cult. Around the end of the rd millennium BC, Sardinia exported to Sicily a culture that built small dolmens, trilithic or polygonal shaped, that served as tombs, as in the Sicilian dolmen of "Cava dei Servi". From this region, they reached Malta and other countries of Mediterranean basin.

The Terramare was an early Indo-European civilization in the area of what is now Pianura Padana (in northern Italy) before the arrival of the Celts, and in other parts of Europe. They lived in square villages of wooden stilt houses. These villages were built on land, but generally near a stream, with roads that crossed each other at right angles. The whole complex was of the nature of a fortified settlement. The Terramare culture was widespread in the Pianura Padana, especially along the Panaro river, between Modena and Bologna, and in the rest of Europe. The civilization developed in the Middle and Late Bronze Age, between the th and the th centuries BC.

The Castellieri culture developed in Istria during the Middle Bronze Age. It lasted for more than a millennium, from the th century BC until the Roman conquest in the rd century BC. It takes its name from the fortified boroughs (Castellieri, Friulian: cjastelir) that characterized the culture.

The Canegrate culture developed from the mid-Bronze Age (th century BC) until the Iron Age in the Pianura Padana, in what are now western Lombardy, eastern Piedmont, and Ticino. It takes its name from the township of Canegrate, where, in the th century, some fifty tombs with ceramics and metal objects were found. The Canegrate culture migrated from the northwest part of the Alps and descended to Pianura Padana from the Swiss Alps passes and the Ticino.

The Golasecca culture developed starting from the late Bronze Age in the Po plain. It takes its name from Golasecca, a locality next to the Ticino, where, in the early th century, abbot Giovanni Battista Giani [it] excavated its first findings (some fifty tombs with ceramics and metal objects). Remains of the Golasecca culture span an area of about , km (,, acres) south to the Alps, between the Po, Sesia, and Serio rivers, dating from the th to the th century BC.

West Europe

[edit]

Great Britain

[edit]

Main article: Bronze Age Britain

Bronze shield, Britain, – BC

In Great Britain, the Bronze Age is considered to have been the period from around to BC. Migration brought new people to the islands from the continent. Tooth enamel isotope research on bodies found in early Bronze Age graves around Stonehenge indicates that at least some of the migrants came from the area of modern Switzerland. Another example site is Must Farm near Whittlesey, host to the most complete Bronze Age wheel ever to be found. The Beaker culture displayed different behaviours from earlier Neolithic people, and cultural change was significant. Integration is thought to have been peaceful, as many of the early henge sites were seemingly adopted by the newcomers. The rich Wessex culture developed in southern Britain at this time. Additionally, the climate was deteriorating; where once the weather was warm and dry it became much wetter as the Bronze Age continued, forcing the population away from easily defended sites in the hills and into the fertile valleys. Large livestock farms developed in the lowlands and appear to have contributed to economic growth and inspired increasing forest clearances. The Deverel-Rimbury culture began to emerge in the second half of the Middle Bronze Age (c. – BC) to exploit these conditions. Devon and Cornwall were major sources of tin for much of western Europe and copper was extracted from sites such as the Great Orme mine in northern Wales. Social groups appear to have been tribal but with growing complexity and hierarchies becoming apparent.

The burials, which until this period had usually been communal, became more individual. For example, whereas in the Neolithic a large chambered cairn or long barrow housed the dead, Early Bronze Age people buried their dead in individual barrows (commonly known and marked on modern British Ordnance Survey maps as tumuli), or sometimes in cists covered with cairns.

The greatest quantities of bronze objects in England were discovered in East Cambridgeshire, with the most important finds recovered in Isleham (more than  pieces). Alloying of copper with zinc or tin to make brass or bronze was practised soon after the discovery of copper itself. One copper mine at Great Orme in North Wales, reached a depth of metres. At Alderley Edge in Cheshire, carbon dating has established mining at around to BC (% probability). The earliest identified metalworking site (Sigwells, Somerset) came much later, dated by globular urn-style pottery to approximately the th century BC. The identifiable sherds from over mould fragments included a perfect fit of the hilt of a sword in the Wilburton style held in Somerset County Museum.

Atlantic Bronze Age

[edit]

Main article: Atlantic Bronze Age

'Sword of Jutphaas', Netherlands, c.  BC

The Atlantic Bronze Age as cultural geographic region is a cultural complex (c. -// cal. BC) that includes different cultures in the contex of the Atlantic Iberian Peninsula (Portugal, Andalucía, Galicia, Asturias, Cantabria, País Vasco, Navarra and Castilla and León), the Atlantic France, Britain and Ireland, while the Atlantic Bronze Age as cultural complex of the final phase of the Bronze Age period is dated between c.  and BC. It is marked by economic and cultural exchange. Commercial contacts extend to Denmark and the Mediterranean. The Atlantic Bronze Age was defined by many distinct regional centres of metal production, unified by a regular maritime exchange of products.

Ireland

[edit]

Main articles: Prehistoric Ireland § Bronze Age, and Atlantic Bronze Age

The Bronze Age in Ireland commenced around BC when copper was alloyed with tin and used to manufacture Ballybeg type flat axes and associated metalwork. The preceding period is known as the Copper Age and is characterised by the production of flat axes, daggers, halberds and awls in copper. The period is divided into three phases: Early Bronze Age (– BC), Middle Bronze Age (– BC), and Late Bronze Age (–c.  BC). Ireland is known for a relatively large number of Early Bronze Age burials. The country's stone circles and stone rows were built during this period.

One of the characteristic types of artefacts of the Early Bronze Age in Ireland is the flat axe. There are five main types of flat axes: Lough Ravel crannog (c.  BC), Ballybeg (c.  BC), Killaha (c.  BC), Ballyvalley (c. – BC), Derryniggin (c.  BC), and a number of metal ingots in the shape of axes.

Northern Europe

[edit]

Main article: Nordic Bronze Age

Trundholm sun chariot, Denmark, c.  BC

The Bronze Age in Northern Europe spans the entire nd millennium BC, (Unetice culture, Urnfield culture, Tumulus culture, Terramare culture and Lusatian culture) lasting until c.  BC. The Northern Bronze Age was both a period and a Bronze Age culture in Scandinavian pre-history, c. – BC, with sites as far east as Estonia. Succeeding the Late Neolithic culture, its ethnic and linguistic affinities are unknown in the absence of written sources. It was followed by the Pre-Roman Iron Age.

Even though Northern European Bronze Age cultures came relatively late, and came into existence via trade, sites present rich and well-preserved objects made of wool, wood and imported Central European bronze and gold. Many rock carvings depict ships, and the large stone burial monuments known as stone ships suggest that shipping played an important role. Thousands of rock carvings depict ships, most probably representing sewn plank-built canoes for warfare, fishing, and trade. These may have a history as far back as the neolithic period and continue into the Pre-Roman Iron Age, as shown by the Hjortspring boat. There are many mounds and rock carving sites from the period. Numerous artefacts of bronze and gold are found. No written language existed in the Nordic countries during the Bronze Age. The rock carvings have been dated through comparison with depicted artefacts.

Eastern Europe

[edit]

Bronze Age spread of Yamnaya steppe pastoralist ancestry into two subcontinents—Europe and South Asia, and location of the Afanasievo culture, which has the same genetic characteristics as the Yamnayas.

The Yamnaya culture (c.– BC) was a Late Copper Age/Early Bronze Age culture of the Pontic-Caspian steppe, and is associated with early Indo-Europeans. It was followed on the steppe by the Catacomb culture (c. – BC) and the Poltavka culture (c.– BC). The closely-related Corded Ware culture in the forest-steppe region to the north (c. – BC) spread eastwards with the Fatyanovo culture (c.– BC), which subsequently developed into the Abashevo culture (c.– BC) and the Sintashta culture (c. – BC). The earliest known chariots have been found in Sintashta burials and there is earlier evidence for chariot use in the Abashevo culture. The Sintashta culture expanded further eastwards into central Asia becoming the Andronovo culture, whilst the Srubnaya culture (c.– BC) continued the use of chariots in eastern Europe.

[edit]

Sub-Saharan Africa

[edit]

See also: Copper metallurgy in Africa

Iron and copper smelting appeared around the same time in most parts of Africa. As such, most African civilizations outside Egypt did not experience a distinct Bronze Age. Evidence for iron smelting appears earlier or at the same time as copper smelting in Nigeria c. – BC, Rwanda and Burundi c. – BC and Tanzania c.  BC.

There is a longstanding debate about whether both copper and iron metallurgy were independently developed in sub-Saharan Africa or introduced from the outside across the Sahara Desert from North Africa or the Indian Ocean. Evidence for theories of independent development and outside introduction are scarce and the subject of active scholarly debate. Scholars have suggested that both the relative dearth of archeological research in sub-Saharan Africa as well as long-standing prejudices have limited or biased our understanding of pre-historic metallurgy on the continent. One scholar characterized the state of historical knowledge: "To say that the history of metallurgy in sub-Saharan Africa is complicated is perhaps an understatement."

West Africa

[edit]

Copper smelting took place in West Africa prior to the appearance of iron smelting in the region. Evidence for copper smelting furnaces was found near Agadez, Niger that has been dated as early as BC. However, evidence for copper production in this region before BC is debated. Evidence of copper mining and smelting has been found at Akjoujt, Mauretania that suggests small scale production c.  to BC.

Americas

[edit]

See also: Metallurgy in pre-Columbian America and Metallurgy in pre-Columbian Mesoamerica

The Moche civilization of South America independently discovered and developed bronze smelting. Bronze technology was developed further by the Incas and widely used both for utilitarian objects and for sculpture.[unreliable source?] A later appearance of limited bronze smelting in western Mexico suggests either contact of that region with Andean cultures or separate discovery of the technology. The Calchaquí people of northwestern Argentina had bronze technology.

Trade

[edit]

See also: Tin sources and trade in ancient times

Trade and industry played a major role in the development of Bronze Age civilizations. With artefacts of the Indus Valley civilization found in ancient Mesopotamia and Egypt, it is clear that these civilizations were not only in touch with one another, but also trading. Early long-distance trade was limited almost exclusively to luxury goods like spices, textiles, and precious metals. Not only did this make cities with ample amounts of these products extremely rich, but it also led to an intermingling of cultures for the first time in history.

Trade routes were not just on land. The first and most extensive trade routes were along rivers such as the Nile, the Tigris, and the Euphrates, which led to the growth of cities on the banks of these rivers. The later domestication of camels also helped encourage trade routes overland, linking the Indus Valley with the Mediterranean. This further led to towns sprouting up everywhere there was a pit-stop or caravan-to-ship port.