

PRE-UNITED STATES HISTORY

1500–1599

Joe Kramer



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Chapter 1

Introduction

The **prehistory of the United States** comprises the occurrences within regions now part of the United States of America during the interval of time spanning from the formation of the Earth to the documentation of local history in written form. At the start of the Paleozoic era, what is now "North" America was actually in the southern hemisphere. Marine life flourished in the country's many seas, although terrestrial life had not yet evolved. During the latter part of the Paleozoic, seas were largely replaced by swamps home to amphibians and early reptiles. When the continents had assembled into Pangaea drier conditions prevailed. The evolutionary precursors to mammals dominated the country until a mass extinction event ended their reign.

The Triassic, first period of the Mesozoic era followed. Dinosaurs evolved and began their rise to dominance, quickly spreading into the United States. Soon Pangaea began to split up and North America began drifting north and westward. During the latter Jurassic, the floodplains of the western states were home to dinosaurs like *Allosaurus*, *Apatosaurus*, and *Stegosaurus*. During the Cretaceous, the Gulf of Mexico expanded until it split North America in half. Plesiosaurs and mosasaurs swam in its waters. Later into the period it began to withdraw and the coastal plains of the western states were home to dinosaurs like *Edmontosaurus*, *Triceratops*, and *Tyrannosaurus*. Another mass extinction ended the reign of the dinosaurs.

The Cenozoic era began afterward. The inland sea of the Cretaceous gradually vanished and mammals were beginning to dominate the land. During the Eocene the western states were home to small primitive camels and horses as well as the carnivorous creodonts. Soon mammals had entered the oceans and the early whale *Basilosaurus* swam the coastal waters of the southeast. Rhino-like titanotheres dominated Oligocene South Dakota. From this point on the climate in the United States cooled until the Pleistocene, when glaciers spread. Saber-toothed cats, woolly mammoths, mastodons, and dire wolves roamed the land. Humans arrived across a land bridge between Siberia and Alaska and may have played a role in hunting these animals into extinction.

Precambrian

The oldest known eukaryotes lived around 1.4 billion years ago during the Precambrian near Beck Spring, California. These were photosynthetic organisms and produced oxygen as a byproduct of their physiology. The Beck Spring eukaryotes and other Precambrian photosynthesizers released the oxygen that now makes the planet's atmosphere breathable. Precambrian Blue-green algae remains from this age were preserved between Copper Harbor and Eagle Harbor on the shoreline of Lake Superior in the Upper Peninsula of Michigan. The appearance of the first eukaryotic cells in the fossil record were relatively followed by evidence of complex multicellular life. Rocks in Nevada dating back to a billion years ago preserve trace fossils left behind by worms as they burrowed below the sediment. Other complex Precambrian lifeforms were preserved in North Carolina and Arizona.

Paleozoic

The Phanerozoic eon began following the Precambrian. The first major unit of time it contained was the Cambrian period of the Paleozoic era. At the time, earth's continents were in a very different arrangement and were generally smaller than they are today. The southeastern part of the US was connected to South America and Africa and located in the polar latitudes of the southern hemisphere. The western states were located near the equator.

All known life during the Cambrian was aquatic so areas of the United States above sea level would have been sterile wastelands. Trilobites are the most common kind of animal in the Cambrian fossil record. Especially notable are the *Elrathia* of the Antelope Springs region of Utah. Sponge-like archaeocyathids were common in Nevada. Brachiopods, gastropods, and sponges were also important Cambrian animals. Sea levels around North America dropped at the end of the Cambrian. Ecosystems in shallow water probably devastated. The Cambrian ended with a mass extinction. Globally, brachiopods and gastropods lost much of their biodiversity, sponges lost about half of their families and almost three quarters of contemporary trilobite families vanished at the same time.

Much of the continent would be submerged when the sea finally rose again. The most common animal in the Ordovician fossil record seems to have been brachiopods. Large numbers flourished and were preserved in great detail near Cincinnati during the Middle Ordovician. Members of this fauna were preserved in Indiana, Kentucky, and Ohio. Most known

Ordovician trilobites are distinct from their Cambrian forebears as the few taxa surviving the mass extinction diversified once again. During the Middle Ordovician, early armored jawless fish called ostracoderms left behind fragmentary shards of bone in what is now the Rocky Mountains region. Late in the Ordovician sea levels dropped. Another mass extinction marked the end of the Ordovician. Globally, 25% of families disappeared. Major losses were experienced by brachiopods, fishes, echinoids, sponges and trilobites. This mass extinction was also most damaging to trilobites, which lost 50% of their families.

During the Silurian, warm, shallow seas covered most of North America. Illinois, Indiana, and Michigan were home to vast coral reefs. The reefs of Indiana in particular are among the most diverse of the period on the entire continent. The southeastern United States were still part of Gondwanaland during the Silurian. Graptolites still inhabited the waters near the eastern coast of the United States but were not as big a component of the Silurian fauna as they used to be during the Ordovician. As the Silurian progressed the seas covering most of the country would retreat. Only the Michigan and New York areas (then near the equator) were still inundated. However, these landlocked seas were not being replenished by freshwater and so gradually evaporated, leaving concentrated salt deposits in those regions.

Devonian North America once again experience home to seas that teemed with life. In fact Devonian marine life may have been more abundant and diverse than at any other point in the Paleozoic. Glass sponges became abundant in western New York during the Devonian. Especially notable are the marine

fossils of Cuyahoga County, Ohio, which was home to more than 120 kinds of marine life. The local fishes alone left behind more than 50,000 fossils. During the Late Devonian the oldest known seed-bearing plants grew in Pennsylvania. The plants responsible for leaving behind the local fossil seeds may have been seed ferns, plants whose fronds resemble ferns but who reproduce through seeds instead of spores. Gilboa Forest, among the first in the world, formed in New York around this time. The Devonian ended with another mass extinction. Globally, 25% of families were lost. Nearly every family of ammonoids, fishes, and amphibians became extinct. Most known families of coral and trilobite became extinct. Other taxa to suffer declines in diversity include brachiopods, bryozoans, crinoids, and ostracodes.

The ensuing Mississippian has been nicknamed the Age of Crinoids because this group left behind such abundant fossils. Other common lifeforms include their relatives the blastoids. The pinhead-sized foraminiferan *Endothyra* fed on seafloor detritus and was extremely abundant during the Mississippian. Some limestones in Illinois and Missouri that formed at this time are almost entirely composed of its remains. Few fossils of terrestrial life are known from the Mississippian of North America.

During the ensuing Pennsylvanian, the northward drift of Gondwanaland finally joined the southeastern United States to North America as Pangaea began to form. Mountain building raised the Ancestral Rockies in Colorado, Utah, and Wyoming. Seawaters left the interior of the country. Densely vegetated swamps were widespread. The largest insects in geologic history lived during the Pennsylvanian. Giant salamander-like

amphibians left behind footprints near Lawrence, Kansas that would later fossilize. Fossil footprints from this time period were also preserved in eastern states like Alabama, Georgia, West Virginia, Ohio, and Pennsylvania where Carboniferous fossil footprints are known.

The world's continents were joined as Pangaea throughout all of the Permian. Volcanic activity occurred on the west coast. Seas were present in the southwest and west coast. The seas of Texas were home to massive reefs made of spined brachiopods jumbled together. Seas that had previously covered Kansas, New Mexico and Texas began drying up and left behind salt deposits. The inner portions of the western United States had a hot dry climate. Sand dunes were common throughout the country. The insects of the Permian were common and diverse, but smaller than those of the Pennsylvanian. An example of this bounty were the twenty different orders preserved at a site called Insect Hill near Elmo, Kansas. Massive amphibians were not rare in the southwestern United States but were unable to stray too far from bodies of water. *Seymouria* was a twenty inch long transitional form documenting the origin of reptiles from their amphibian-like forebears from Texas. Reptiles were becoming common during the Permian. Texas was also home to the pelycosaurs *Dimetrodon* and *Edaphosaurus*. Late in the Permian therapsids became the dominant large-bodied terrestrial vertebrates. These were the precursors of mammals.

The Permian ended with the most destructive mass extinction in all of earth's history. Globally up to 96% of all species may have disappeared. Rugose and tabulate corals became extinct. The cryptostome and trepostome bryozoans also became extinct at this time despite their long history of diversity and

abundance earlier in the Paleozoic. Brachiopods suffered greatly and never regained their previous numbers or variety. Ammonoids lost all but one family. Eurypterids and trilobites became extinct. Blastoids became extinct. Crinoids lost all but one family. The echinoids just squeaked past; only one genus is known to have survived. Typical survivors were small detritivores and sediments feeders. The worst losses were among filter feeders and carnivores.

Mesozoic

The eastern United States was part of Pangaea's interior for most of the Triassic Period of the Mesozoic era. At the time, the area lay close to the equator and was connected to western Europe and Africa. The union of all of Earth's continents into a single land mass changed the way the atmosphere and oceans circulated. This left what is now the eastern US with a hot climate and pronounced seasons. Much of the country was located at about 30 latitudinal degrees North, where there tends to be high atmospheric pressures and little precipitation. The western United States were largely covered in seawater during the Late Triassic. Mountain building and volcanic activity were ongoing in the same region.

The Triassic saw the Earth's biosphere recovering from the end-Permian mass extinction. After the Permian mass extinction, ammonoids were one of the first groups of marine invertebrates to become abundant and diverse again. During the Middle Triassic the scleractinian corals typical of modern oceans appeared. During the Triassic, corals were rare in North America. Nevertheless, some were present on the west coast, although these corals did not congregate into reefs.

Ichthyosaurs were one of the most important groups of marine reptiles during the Triassic. Important ichthyosaur fossils of this age were preserved in Nevada.

On land, North America's vegetation included plants like conifers, cycads, ferns, ginkgoes, and horsetails. The Triassic vegetation of the east coast indicated swampy conditions in the local rift valleys. Arizona was home to a great forest that would later leave behind the area's famous petrified wood. Reptiles first began claiming the ecological dominance of marine, terrestrial and aerial habitats during the Triassic that would earn the Mesozoic the nickname "the Age of Reptiles".

The Late Triassic also saw the origin of the dinosaurs. Dinosaurs left behind abundant fossils in the Four Corners region and this area is now known as one of the best sources of Late Triassic dinosaur fossils in the United States. Texas is also good source of dinosaur remains from this time. The oldest dinosaur remains in the eastern US are about 225 million years old. So, dinosaurs had reached the east coast of the United States not long after they evolved in the first place. Fossil footprints are the most common kind of early dinosaur fossil in the eastern United States.

As the Triassic ended, Pangaea was breaking up into separate continents again. Rift valleys formed along the east coast as the North American, European and African plates diverged. This process created rifts down the east coast to Florida. One of these rift valleys was inundated with ocean water and became the young Atlantic Ocean. Volcanism related to the tectonic processes fracturing Pangaea also left deposits in the eastern US. At the end of the Triassic another mass extinction

occurred. Globally, this extinction event wiped out roughly one quarter of families. Conodonts went completely extinct. Ammonoids barely survived. Brachiopods lost much of their former diversity as well. On land, most families of amphibians and reptiles became extinct.

The eastern coast of the US became warmer and wetter during the Early Jurassic because the newly formed Atlantic Ocean brought it into contact with more humid air. Fossils from spanning from the Late Triassic to Early Jurassic were preserved in the Newark Supergroup, which is found between the Canadian province Nova Scotia and South Carolina. Rifting continued in the eastern part of the country during the Early Jurassic as the eastern United States drifted apart from Greenland and Europe. The Pacific Plate forced its way under the North American plate, triggering geologic upheaval, including volcanism, on the west coast. Ichthyosaurs remained the dominant marine reptiles of the Early Jurassic, but as the Jurassic progressed that title was gradually transferred to the plesiosaurs.

The stratigraphic unit known as the Morrison Formation was deposited during the Late Jurassic. These sediments are now exposed in Arizona, New Mexico, Oklahoma, Utah, Colorado, Wyoming, South Dakota, and Montana. At the time, this region of the country was home to forests of conifers, ginkgos, and tree ferns. Coal would later form from the remains of these plants. Local mammals diversified significantly during the Jurassic. The Morrison Formation is the best source of Jurassic mammal fossils in North America. Local dinosaurs included the ornithomimid *Ornithomimus*, the sauropods *Apatosaurus* and *Diplodocus*, and the theropod *Allosaurus*.

Unlike many periods of geologic history the Jurassic did not end in a mass extinction. There were, however, lesser extinction events going on at the time, with notable losses occurring among ammonoids and dinosaurs.

During the Early Cretaceous the Gulf of Mexico began gradually expanding northward. On land, the eastern United States during resembled the modern Mississippi Delta. It was a lowlying plain divided by rivers. A thick coat of vegetation covered the region in plants like club mosses, conifers, cycads, ferns, ginkgoes, horsetails. and early flowers.

During the Late Cretaceous the Gulf of Mexico had expanded through North America until reaching Alaska. Up to half of the continent's modern surface area may have been submerged by this sea. This is called the Western Interior Seaway. It covered the majority of states like Texas, New Mexico, Oklahoma, Colorado, Kansas, Nebraska, the Dakotas, and Wyoming. The seafloor was smooth and probably never submerged by more than 600 feet of water. A great diversity of invertebrates flourished both on the bottom and in the water column. Examples include ammonites, giant clams, crinoids, rudists, and squid. Vertebrate life included bony fishes, mosasaurs, plesiosaurs, sharks, and turtles. Areas now occupied by the plains of the east coast from New Jersey southward as well as the Gulf coast region were covered in seawater during the Cretaceous. Sea levels reached their highest level in all of geologic history during the Cretaceous, although they declined before the period ended. Scleractinian corals were more diverse during the Cretaceous than they are today. Back then coral reefs formed along the Gulf coast. Rudist bivalves also constructed reefs in the Gulf coast region. Another bivalve,

Exogyra, was so common its fossils are found in almost every Cretaceous marine deposit. During the Cretaceous, the dominant group of living fishes, the teleosts, first achieved ascendancy over their holostean forebears. The aquatic toothed bird *Hesperornis* is the only known Cretaceous bird whose remains are found with any frequency in North America.

Near the end of the Cretaceous, the Western Interior Seaway began to withdraw. This regression would end up resulting in both halves of North America reuniting. As the seaway withdrew a coastal plain expanded southward into the northern part of the western interior. Powerful geologic forces began to fold and distort the rocks of Idaho, Utah, and Wyoming, beginning the processes that would form the Rocky Mountains. Rivers flowing across the eastern part of what is now Montana, deposited the sediments now known as the Hell Creek Formation. At the time, Montana was home to some of the most famous dinosaurs; creatures like *Edmontosaurus*, *Pachycephalosaurus*, *Triceratops*, and *Tyrannosaurus*. Despite the western upheaval, the eastern US had achieved geological stability by the Late Cretaceous. The weather was uniformly warm and rainy throughout the year. Flowering plants were now common and fossil of broadleaf trees and shrubs were preserved in Late Cretaceous rocks.

The Cretaceous ended with another mass extinction. This one was the second most devastating in geologic history. Roughly half of all animal families became extinct. Ammonoids and belemnoids were among the marine invertebrates extinguished. Planktonic foraminiferans barely survived. Two thirds of coral species became extinct. About half of sponge families became extinct. Bivalves, bryozoans, and gastropods also sustained

heavy losses. The major Mesozoic marine reptile groups became extinct. On land, the non-avian dinosaurs and pterosaurs became extinct.

The most popular explanation for the mass extinction at the end of the Cretaceous is that it resulted from a meteorite impact. This impact would explain the presence of high levels of the heavy element iridium in sediments from the time. Iridium is very rare in earth's crust but much more common in meteors. Dinosaurs were widespread within the regions now composing the modern United States. Dinosaur fossils are known to have been preserved in Alabama, Alaska, Arizona, Arkansas, California, Colorado, Connecticut, Delaware, Georgia, Idaho, Iowa, Kansas, Louisiana, Maryland, Massachusetts, Minnesota, Mississippi, Missouri, Montana, Nebraska, Nevada, New Jersey, New Mexico, New York, North Carolina, North Dakota, Oklahoma, Pennsylvania, South Carolina, South Dakota, Tennessee, Texas, Utah, Virginia, Washington, D.C., and Wyoming, but not in Florida, Hawaii, Illinois, Indiana, Kentucky, Maine, Michigan, New Hampshire, Ohio, Oregon, Rhode Island, Vermont, Washington, West Virginia, or Wisconsin.

Cenozoic

After the Cretaceous, a new era of geologic time began; the Cenozoic era, which means the era of "recent life". Traditionally, the first period of the Cenozoic was called the Tertiary, however recent recommendations of the International Commission on Stratigraphy discourage its use, with the correspondent time span divided between the earlier Paleogene and the more recent Neogene periods. The geologic turmoil on

the west coast was maintained as the Pacific Plate continued to slide under the North American Plate. During the early part of the Cenozoic period climates were much warmer than they are today. Latitudes as high as South Dakota had a subtropical climate until as recently as the end of the Oligocene.

Sea level fell throughout the Cenozoic. Areas of Cenozoic North America that were covered by seawater tended to be areas near the modern coasts. The Cannonball Sea near Minot, North Dakota was the last of the North American interior. Cenozoic marine invertebrates are best known from deposits near the coasts and tend to resemble modern forms. Solitary corals became common, but coral reefs formed only around the Gulf of Mexico. Sharks were common during the Cenozoic. From Eocene times onward they began increasing in size.

- The beginning of the Cenozoic was also the beginning of the Age of Mammals. The small shrew-like generalist insectivores that survived the Late Cretaceous extinction event began diversifying into the mammals that dominate the modern world's terrestrial ecosystems. The creodonts, which first appeared in the Paleocene, were among the first mammals to specialize in carnivory. The coastal region of the southeastern states, like Alabama and Mississippi were covered in seawater and home to the primitive whale *Basilosaurus* during the Eocene. The diversity of mammalian carnivores on land increased from the Eocene to the Miocene. Around the same time, camels were becoming common in North America, although they were just barely bigger than modern rabbits during the Eocene. Early camels had

four toes. During the early part of the Eocene the first primitive horses also began appearing. Among the earliest was *Eohippus*, a small animal with four toes on the front feet and three on the rear. A group of mammals called oreodonts also appeared during the Eocene. By the Oligocene, camels were the size of sheep and had only two toes. Gradually over time horses also lost toes, but unlike camels, horses' were reduced to a single digit. By the Oligocene their teeth had adapted to endure abrasion from silica in their increasingly grassy diets. Horses gradually became common throughout the country. Large numbers of oreodonts grazed in the badlands of South Dakota by the middle of the Cenozoic. Oreodonts were vaguely pig like and about the size of modern goats. Their numbers peaked during the Oligocene. The largest mammals of Oligocene North America were the rhinoceros-like titanotheres. One spectacular example was the abundant *Brontotherium* of South Dakota, which could be up to 8 feet tall at the shoulder. Despite their early success, by the end of the epoch the entire group became extinct.

Following the Oligocene temperatures began to decline, and with it warm-weather vegetation was forced southward into lower latitudes. By the Miocene some sharks, which had been increasing in size since the Eocene, were over 60 feet long. Mastodons arrived in North America by crossing the Bering land bridge from the old world during the Miocene as well. The oreodonts became extinct during the Pliocene. By the time the Pliocene ended more modern carnivores like wolves and cats appeared. Notable among the latter group were the saber-

toothed cats. Woolly mammoths became abundant across the US during the late Cenozoic. During the late Pleistocene, the large volumes of water were held frozen as part of glaciers. This caused a drop in sea level, which exposed a land bridge between Asia and Alaska. Humans crossed over this bridge and started becoming abundant in North America between 11,000 and 12,000 years ago. Despite withstanding the fluctuating climate and concomitant advance and retreat of glaciers, around 10,000 years ago around 32 genera of large mammals suddenly became extinct. Horses were locally extirpated during these end-Pleistocene megafauna extinctions. Some paleontologists attribute these extinctions to the arrival of early humans, who over hunted the local large game. Under this model, the disappearance of saber-toothed cats and other contemporary predators would be explained by the loss of their primary source of food. However, this explanation is still controversial.

Chapter 2

27,000–12,000 Years

Ago – Humans Cross

the Beringia Land Bridge into North and then South America

Beringia is defined today as the land and maritime area bounded on the west by the Lena River in Russia; on the east by the Mackenzie River in Canada; on the north by 72 degrees north latitude in the Chukchi Sea; and on the south by the tip of the Kamchatka Peninsula. It includes the Chukchi Sea, the Bering Sea, the Bering Strait, the Chukchi and Kamchatka Peninsulas in Russia as well as Alaska in the United States and the Yukon in Canada.

The area includes land lying on the North American Plate and Siberian land east of the Chersky Range. At certain times in prehistory, it formed a land bridge that was up to 1,000 kilometres (620 miles) wide at its greatest extent and which covered an area as large as British Columbia and Alberta together, totaling approximately 1,600,000 square kilometres (620,000 square miles).

Today, the only land that is visible from the central part of the Bering land bridge are the Diomed Islands, the Pribilof Islands of St. Paul and St. George, St. Lawrence Island, and King Island.

The term *Beringia* was coined by the Swedish botanist Eric Hultén in 1937. During the ice ages, Beringia, like most of Siberia and all of North and Northeast China, was not glaciated because snowfall was very light. It was a grassland steppe, including the land bridge, that stretched for hundreds of kilometres into the continents on either side.

It is believed that a small human population of at most a few thousand arrived in Beringia from eastern Siberia during the Last Glacial Maximum before expanding into the settlement of the Americas sometime after 16,500 years Before Present (YBP). This would have occurred as the American glaciers blocking the way southward melted, but before the bridge was covered by the sea about 11,000 YBP.

Before European colonization, Beringia was inhabited by the Yupik peoples on both sides of the straits. This culture remains in the region today along with others. In 2012, the governments of Russia and the United States announced a plan to formally establish "a transboundary area of shared Beringian heritage". Among other things this agreement would establish close ties between the Bering Land Bridge National Preserve and the Cape Krusenstern National Monument in the United States and Beringia National Park in Russia.

Geography

The remains of Late Pleistocene mammals that had been discovered on the Aleutians and islands in the Bering Sea at the close of the nineteenth century indicated that a past land connection might lie beneath the shallow waters between Alaska and Chukotka. The underlying mechanism was first

thought to be tectonics, but by 1930 changes in the icemass balance, leading to global sea-level fluctuations, were viewed as the cause of the Bering land bridge. In 1937, Eric Hultén proposed that around the Aleutians and the Bering Strait region were tundra plants that had originally dispersed from a now-submerged plain between Alaska and Chukotka, which he named Beringia after Vitus Bering who had sailed into the strait in 1728. The American arctic geologist David Hopkins redefined Beringia to include portions of Alaska and Northeast Asia. Beringia was later regarded as extending from the Verkhoyansk Mountains in the west to the Mackenzie River in the east. The distribution of plants in the genera *Erythranthe* and *Pinus* are good examples of this, as very similar genera members are found in Asia and the Americas.

During the Pleistocene epoch, global cooling led periodically to the expansion of glaciers and lowering of sea levels. This created land connections in various regions around the globe. Today, the average water depth of the Bering Strait is 40–50 m (130–160 ft); therefore the land bridge opened when the sea level dropped more than 50 m (160 ft) below the current level. A reconstruction of the sea-level history of the region indicated that a seaway existed from c. 135,000 – c. 70,000 YBP, a land bridge from c. 70,000 – c. 60,000 YBP, intermittent connection from c. 60,000 – c. 30,000 YBP, a land bridge from c. 30,000 – c. 11,000 YBP, followed by a Holocene sea-level rise that reopened the strait. Post-glacial rebound has continued to raise some sections of coast.

During the last glacial period, enough of the earth's water became frozen in the great ice sheets covering North America and Europe to cause a drop in sea levels. For thousands of

years the sea floors of many interglacial shallow seas were exposed, including those of the Bering Strait, the Chukchi Sea to the north, and the Bering Sea to the south. Other land bridges around the world have emerged and disappeared in the same way. Around 14,000 years ago, mainland Australia was linked to both New Guinea and Tasmania, the British Isles became an extension of continental Europe via the dry beds of the English Channel and North Sea, and the dry bed of the South China Sea linked Sumatra, Java, and Borneo to Indochina.

Beringian refugium

The last glacial period, commonly referred to as the "Ice Age", spanned 125,000–14,500 YBP and was the most recent glacial period within the current ice age, which occurred during the last years of the Pleistocene era. The Ice Age reached its peak during the Last Glacial Maximum, when ice sheets began advancing from 33,000 YBP and reached their maximum limits 26,500 YBP. Deglaciation commenced in the Northern Hemisphere approximately 19,000 YBP and in Antarctica approximately 14,500 years YBP, which is consistent with evidence that glacial meltwater was the primary source for an abrupt rise in sea level 14,500 YBP and the bridge was finally inundated around 11,000 YBP. The fossil evidence from many continents points to the extinction of large animals, termed Pleistocene megafauna, near the end of the last glaciation.

During the Ice Age a vast, cold and dry Mammoth steppe stretched from the arctic islands southwards to China, and from Spain eastwards across Eurasia and over the Bering land bridge into Alaska and the Yukon where it was blocked by the

Wisconsin glaciation. The land bridge existed because sea-levels were lower because more of the planet's water than today was locked up in glaciers. Therefore, the flora and fauna of Beringia were more related to those of Eurasia rather than North America. Beringia received more moisture and intermittent maritime cloud cover from the north Pacific Ocean than the rest of the Mammoth steppe, including the dry environments on either side of it.

This moisture supported a shrub-tundra habitat that provided an ecological refugium for plants and animals. In East Beringia 35,000 YBP, the northern arctic areas experienced temperatures 1.5 °C (2.7 °F) degrees warmer than today but the southern sub-Arctic regions were 2 °C (4 °F) degrees cooler. During the LGM 22,000 YBP the average summer temperature was 3–5 °C (5–9 °F) degrees cooler than today, with variations of 2.9 °C (5.2 °F) degrees cooler on the Seward Peninsula to 7.5 °C (13.5 °F) cooler in the Yukon. In the driest and coldest periods of the Late Pleistocene, and possibly during the entire Pleistocene, moisture occurred along a north–south gradient with the south receiving the most cloud cover and moisture due to the air-flow from the North Pacific.

In the Late Pleistocene, Beringia was a mosaic of biological communities. Commencing from c. 57,000 YBP (MIS 3), steppe–tundra vegetation dominated large parts of Beringia with a rich diversity of grasses and herbs. There were patches of shrub tundra with isolated refugia of larch (*Larix*) and spruce (*Picea*) forests with birch (*Betula*) and alder (*Alnus*) trees. It has been proposed that the largest and most diverse megafaunal community residing in Beringia at this time could only have been sustained in a highly diverse and productive environment.

Analysis at Chukotka on the Siberian edge of the land bridge indicated that from c. 57,000 – c. 15,000 YBP (MIS 3 to MIS 2) the environment was wetter and colder than the steppe-tundra to the east and west, with warming in parts of Beringia from c. 15,000 YBP.

These changes provided the most likely explanation for mammal migrations after c. 15,000 YBP, as the warming provided increased forage for browsers and mixed feeders. Beringia did not block the movement of most dry steppe-adapted large species such as saiga antelope, woolly mammoth, and caballid horses. However, from the west, the woolly rhino went no further east than the Anadyr River, and from the east North American camels, the American kiang-like equids, the short-faced bear, bonnet-headed muskoxen, and American badger did not travel west. At the beginning of the Holocene, some mesic habitat-adapted species left the refugium and spread westward into what had become tundra-vegetated northern Asia and eastward into northern North America.

The latest emergence of the land bridge was c. 70,000 years ago. However, from c. 24,000 – c. 13,000 YBP the Laurentide Ice Sheet fused with the Cordilleran Ice Sheet, which blocked gene flow between Beringia (and Eurasia) and continental North America. The Yukon corridor opened between the receding ice sheets c. 13,000 YBP, and this once again allowed gene flow between Eurasia and continental North America until the land bridge was finally closed by rising sea levels c. 10,000 YBP. During the Holocene, many mesic-adapted species left the refugium and spread eastward and westward, while at the same time the forest-adapted species spread with

the forests up from the south. The arid adapted species were reduced to minor habitats or became extinct.

Beringia constantly transformed its ecosystem as the changing climate affected the environment, determining which plants and animals were able to survive. The land mass could be a barrier as well as a bridge: during colder periods, glaciers advanced and precipitation levels dropped. During warmer intervals, clouds, rain and snow altered soils and drainage patterns. Fossil remains show that spruce, birch and poplar once grew beyond their northernmost range today, indicating that there were periods when the climate was warmer and wetter. The environmental conditions were not homogenous in Beringia. Recent stable isotope studies of woolly mammoth bone collagen demonstrate that western Beringia (Siberia) was colder and drier than eastern Beringia (Alaska and Yukon), which was more ecologically diverse. Mastodons, which depended on shrubs for food, were uncommon in the open dry tundra landscape characteristic of Beringia during the colder periods. In this tundra, mammoths flourished instead.

The extinct pine species *Pinus matthewsii* has been described from Pliocene sediments in the Yukon areas of the refugium.

The paleo-environment changed across time. Below is a gallery of some of the plants that inhabited eastern Beringia before the beginning of the Holocene.

Gray wolf

The earliest *Canis lupus* specimen was a fossil tooth discovered at Old Crow, Yukon, Canada. The specimen was found in sediment dated 1 million YBP, however the geological

attribution of this sediment is questioned. Slightly younger specimens were discovered at Cripple Creek Sump, Fairbanks, Alaska, in strata dated 810,000 YBP. Both discoveries point to an origin of these wolves in eastern Beringia during the Middle Pleistocene. Grey wolves suffered a species-wide population bottleneck (reduction) approximately 25,000 YBP during the Last Glacial Maximum. This was followed by a single population of modern wolves expanding out of their Beringia refuge to repopulate the wolf's former range, replacing the remaining Late Pleistocene wolf populations across Eurasia and North America as they did so.

Human habitation

The Bering land bridge is a postulated route of human migration to the Americas from Asia about 20,000 years ago. An open corridor through the ice-covered North American Arctic was too barren to support human migrations before around 12,600 YBP. A study has indicated that the genetic imprints of only 70 of all the individuals who settled and traveled the land bridge into North America are visible in modern descendants. This genetic bottleneck finding is an example of the founder effect and does not imply that only 70 individuals crossed into North America at the time; rather, the genetic material of these individuals became amplified in North America following isolation from other Asian populations.

Seagoing coastal settlers may also have crossed much earlier, but there is no scientific consensus on this point, and the coastal sites that would offer further information now lie submerged in up to a hundred metres of water offshore. Land animals migrated through Beringia as well, introducing to

North America species that had evolved in Asia, like mammals such as proboscideans and American lions, which evolved into now-extinct endemic North American species. Meanwhile, equids and camelids that had evolved in North America (and later became extinct there) migrated into Asia as well at this time.

A 2007 analysis of mtDNA found evidence that a human population lived in genetic isolation on the exposed Beringian landmass during the Last Glacial Maximum for approximately 5,000 years. This population is often referred to as the Beringian Standstill population. A number of other studies, relying on more extensive genomic data, have come to the same conclusion.

Genetic and linguistic data demonstrate that at the end of the Last Glacial Maximum, as sea levels rose, some members of the Beringian Standstill Population migrated back into eastern Asia while others migrated into the Western Hemisphere, where they became the ancestors of the indigenous people of the Western Hemisphere. Environmental selection on this Beringian Standstill Population has been suggested for genetic variation in the Fatty Acid Desaturase gene cluster and the ectodysplasin A receptor gene. Using Y Chromosome data Pinotti et al. have estimated the Beringian Standstill to be less than 4600 years and taking place between 19.5 kya and 15 kya.

Previous connections

Biogeographical evidence demonstrates previous connections between North America and Asia. Similar dinosaur fossils

occur both in Asia and in North America. For instance the dinosaur *Saurolophus* was found in both Mongolia and western North America. Relatives of *Troodon*, *Triceratops*, and even *Tyrannosaurus rex* all came from Asia.

Fossil evidence indicates an exchange of primates between North America and Asia around 55.8 million years ago. By 20 million years ago, evidence in North America shows a further interchange of mammalian species. Some, like the ancient saber-toothed cats, have a recurring geographical range: Europe, Africa, Asia, and North America. The only way they could reach the New World was by the Bering land bridge. Had this bridge not existed at that time, the fauna of the world would be very different.

Chapter 3

Clovis Culture

The **Clovis culture** is a prehistoric Paleoamerican culture, named for distinct stone tools found in close association with Pleistocene fauna at Blackwater Locality No. 1 near Clovis, New Mexico, in the 1920s and 1930s. It appears around 11,500–11,000 uncalibrated RCYBP at the end of the last glacial period, and is characterized by the manufacture of "Clovis points" and distinctive bone and ivory tools. Archaeologists' most precise determinations at present suggest this radiocarbon age is equal to roughly 13,200 to 12,900 calendar years ago. Clovis people are considered to be the ancestors of most of the indigenous peoples of the Americas.

The only human burial that has been directly associated with tools from the Clovis culture included the remains of an infant boy researchers named Anzick-1. Paleogenetic analyses of Anzick-1's ancient nuclear, mitochondrial, and Y-chromosome DNA reveal that Anzick-1 is closely related to modern Native American populations, which lends support to the Beringia hypothesis for the settlement of the Americas.

The Clovis culture was replaced by several more localized regional societies from the Younger Dryas cold-climate period onward. Post-Clovis cultures include the Folsom tradition, Gainey, Suwannee-Simpson, Plainview-Goshen, Cumberland, and Redstone. Each of these is thought to derive directly from Clovis, in some cases apparently differing only in the length of the fluting on their projectile points. Although this is generally

held to be the result of normal cultural change through time, numerous other reasons have been suggested as driving forces to explain changes in the archaeological record, such as the Younger Dryas postglacial climate change which exhibited numerous faunal extinctions.

After the discovery of several Clovis sites in eastern North America in the 1930s, the Clovis people came to be regarded as the first human inhabitants who created a widespread culture in the Americas.

However, several archaeological discoveries have cast significant doubt on the Clovis-first theory, including sites such as Cactus Hill in Virginia, Paisley Caves in the Summer Lake Basin of Oregon, the Topper site in Allendale County South Carolina, Meadowcroft Rockshelter in Pennsylvania, the Friedkin site in Texas, Cueva Fell in Chile, and especially Monte Verde also in Chile. The oldest claimed human archaeological site in the Americas is the Pedra Furada hearths in Brazil, controversially dated to 19,000 to 30,000 years before the earliest Clovis sites.

Description

A hallmark of the toolkit associated with the Clovis culture is the distinctively shaped, fluted-stone spear point, known as the Clovis point. The Clovis point is bifacial and typically fluted on both sides. Clovis tools were produced during a roughly 300 year period. Archaeologists do not agree on whether the widespread presence of these artifacts indicates the proliferation of a single people, or the adoption of a superior technology by diverse population groups.

The culture is named after artifacts found between 1932 and 1936 at Blackwater Locality No. 1, an archaeological site between the towns of Clovis and Portales, New Mexico. These finds were deemed especially important due to their direct association with mammoth species and the extinct *Bison antiquus*. The *in situ* finds of 1936 and 1937 included most of four stone Clovis points, two long bone points with impact damage, stone blades, a portion of a Clovis blade core, and several cutting tools made on stone flakes. Clovis sites have since been identified throughout much of the contiguous United States, as well as Mexico and Central America, and even into northern South America.

Clovis people are generally accepted to have hunted mammoths, as well as extinct bison, mastodon, gomphotheres, sloths, tapir, camelops, horse, and other smaller animals. More than 125 species of plants and animals are known to have been used by Clovis people in the portion of the Western Hemisphere they inhabited.

The oldest Clovis site in North America is believed to be El Fin del Mundo in northwestern Sonora, Mexico, discovered during a 2007 survey. It features occupation dating around 13,390 calibrated years BP. In 2011, remains of gomphotheres were found; the evidence suggests that humans did, in fact, kill two of them there. Also, the Aubrey site in Denton County, Texas, produced an almost identical radiocarbon date.

Disappearance of Clovis

The most commonly held perspective on the end of the Clovis culture is that a decline in the availability of megafauna,

combined with an overall increase in a less mobile population, led to local differentiation of lithic and cultural traditions across the Americas. After this time, Clovis-style fluted points were replaced by other fluted-point traditions (such as the Folsom culture) with an essentially uninterrupted sequence across North and Central America. An effectively continuous cultural adaptation proceeds from the Clovis period through the ensuing Middle and Late Paleoindian periods.

Whether the Clovis culture drove the mammoth, and other species, to extinction via overhunting – the so-called Pleistocene overkill hypothesis – is still an open, and controversial, question. It has also been hypothesized that the Clovis culture had its decline in the wake of the Younger Dryas cold phase. This "cold shock", lasting roughly 1500 years, affected many parts of the world, including North America. This appears to have been triggered by a vast amount of meltwater – possibly from Lake Agassiz – emptying into the North Atlantic, disrupting the thermohaline circulation.

The Younger Dryas impact hypothesis, or Clovis comet hypothesis, originally proposed that a large air burst or earth impact of a comet or comets from outer space initiated the Younger Dryas cold period about 12,900 BP calibrated (10,900 C uncalibrated) years ago. The hypothesis has been largely contradicted by research showing that most of the findings cannot be repeated by other scientists, and criticized because of misinterpretation of data and the lack of confirmatory evidence.

However, proponents of the hypothesis have responded, disputing the accusation of irreproducibility or replicating

their findings. In 2013, a group from Harvard reported finding a layer of increased platinum composition exactly at the Younger Dryas onset in a Greenland ice core, followed in 2017 by a report that the Pt spike had been replicated at 11 continental Younger Dryas sites.

Discovery

A cowboy, George McJunkin, found an ancient bison (*Bison antiquus*, an extinct relative of the American bison) skeleton in 1908 after a flash flood. The site was first excavated in 1926, near Folsom, New Mexico, under the direction of Harold Cook and Jesse Figgins. On 29 August 1927, they found the first *in situ* Folsom point with the extinct *B. antiquus* bones. This confirmation of a human presence in the Americas during the Pleistocene inspired many people to start looking for evidence of early humans.

In 1929, 19-year-old Ridgely Whiteman, who had been closely following the excavations in nearby Folsom in the newspaper, discovered the Clovis site near the Blackwater Draw in eastern New Mexico. Despite several earlier Paleoindian discoveries, the best documented evidence of the Clovis complex was collected and excavated between 1932 and 1937 near Clovis, New Mexico, by a crew under the direction of Edgar Billings Howard until 1935 and later by John Cotter from the Academy of Natural Sciences/University of Pennsylvania. Howard's crew left their excavation in Burnet Cave, New Mexico, (the first truly professionally excavated Clovis site) in August, 1932, and visited Whiteman and his Blackwater Draw site. By November, Howard was back at Blackwater Draw to investigate additional finds from a construction project.

The *American Journal of Archaeology* (January–March, 1932 V36 #1) in its "Archaeological Notes" mentions E. B. Howard's work in Burnet Cave, including the discovery of extinct fauna and a "Folsom type" point 4 ft below a Basketmaker burial. This brief mention of the Clovis point found in place antedates any work at the Dent Site in Colorado. Reference is made to a slightly earlier article on Burnet Cave in *The University Museum Bulletin* of November, 1931.

The first report of professional work at the Blackwater Draw Clovis site is in the 25 November 1932, issue of *Science News*. The publications on Burnet Cave and Blackwater Draw directly contradict statements by several authors (for example see Haynes 2002:56 *The Early Settlement of North America*) that Dent, Colorado was the first excavated Clovis site. The Dent Site, in Weld County, Colorado, was simply a fossil mammoth excavation in 1932.

The first Dent Clovis point was found 5 November 1932, and the *in situ* point was found 7 July 1933. The *in situ* Clovis point from Burnet Cave was excavated in late August, 1931 (and reported early in 1932). E. B. Howard brought the Burnet Cave point to the 3rd Pecos Conference,

September 1931, and showed it around to several archaeologists interested in early humans (see Woodbury 1983).

Also in 1968, in Montana, a Clovis burial site was found where the remains of a two-year-old child were studied. These remains have been named as Anzick-1 and recently, in 2014, have been used in scientific research.

Clovis Paleo-Indians

Available genetic data show that the Clovis people are the direct ancestors of roughly 80% of all living Native American populations in North and South America, with the remainder descended from ancestors who entered in later waves of migration. As reported in February 2014, DNA from the 12,600-year-old remains of Anzick boy, found in Montana, has affirmed this connection to the peoples of the Americas. In addition, this DNA analysis affirmed genetic connections back to ancestral peoples of northeast Asia. This adds weight to the theory that peoples migrated across a land bridge from Siberia to North America.

Clovis First

Known as "Clovis First", the predominant hypothesis among archaeologists in the latter half of the 20th century had been that the people associated with the Clovis culture were the first inhabitants of the Americas. The primary support for this was that no solid evidence of pre-Clovis human habitation had been found. According to the standard accepted theory, the Clovis people crossed the Beringia land bridge over the Bering Strait from Siberia to Alaska during the period of lowered sea levels during the ice age, then made their way southward through an ice-free corridor east of the Rocky Mountains in present-day Western Canada as the glaciers retreated.

This hypothesis came to be challenged by studies suggesting a pre-Clovis human occupation of the Americas. In 2011, following the excavation of an occupation site at Buttermilk

Creek, Texas, a prominent group of scientists claimed to have definitely established the existence "of an occupation older than Clovis."

According to researchers Michael Waters and Thomas Stafford of Texas A&M University, new radiocarbon dates place Clovis remains from the continental United States in a shorter time window beginning 450 years later than the previously accepted threshold (13,200 to 12,900 BP).

Recently, the scientific consensus has changed to acknowledge the presence of pre-Clovis cultures in the Americas, ending the "Clovis first" consensus.

Alternatives to Clovis First

Evidence of human habitation before Clovis

Archaeological sites that antedate Clovis that are well documented include:

- Bluefish Caves, Yukon, Canada (24,000 yr BP)
- Pedra Furada, Piauí, Brazil (10,500–12,000 yr BP; possibly >50,000 yr BP)
- Topper, South Carolina, US (16,000–20,000 yr BP; possibly 50,000 yr BP)
- Meadowcroft Rockshelter, Pennsylvania, US (16,000 yr BP)
- Buttermilk Creek Complex, Salado, Texas, US (15,500 C yr BP)
- Cactus Hill, Virginia, US (15,070 C yr BP)
- Monte Verde, Chile (18,500 to 14,800 C yr BP)

- Saltville (archaeological site), Virginia, US (14,510 C yr BP)
- Taima-Taima, Venezuela (14,000 yr BP)
- Manis Mastodon Site, Sequim, Washington, US (13,800 yr BP)
- Connley Caves, Oregon, US (13,000 yr BP)
- Page-Ladson, Florida, US (14,550 cal yr BP)
- Lapa do Boquete, Brazil (12,070 \pm 170 C yr BP)
- Paisley Caves, Oregon, US (14,300 cal yr BP)
- Tanana Valley, Alaska, US (13,000–14,000 cal yr BP)
- El Abra, Colombia (12,460 \pm 140 C yr BP)
- Nenana Valley, Alaska, US (12,000 yr BP)
- Tibitó, Colombia (11,740 \pm 110 C yr BP)
- Tagua-Tagua, Chile (11,380 \pm 380 C yr BP)

Predecessors of the Clovis people may have migrated south along the North American coastlines, although arguments exist for many migrations along several different routes. Radiocarbon dating of the Monte Verde site in Chile places Clovis-like culture there as early as 18,500 to 14,500 years ago. Remains found at the Channel Islands of California place coastal Paleoindians there 12,500 years ago. This suggests that the Paleoindian migration could have spread more quickly along the Pacific coastline, proceeding south, and that populations that settled along that route could have then begun migrations eastward into the continent.

The Pedra Furada sites in Brazil include a collection of rock shelters, which were used for thousands of years by diverse human populations. The first excavations yielded artifacts with carbon-14 dates of 48,000 to 32,000 years BP. Repeated analyses have confirmed this dating, carrying the range of

dates up to 60,000 BP. The best-analyzed archaeological levels are dated between $32,160 \pm 1000$ years BP and $17,000 \pm 400$ BP. These claims have become an issue of contention between North American archaeologists and their South American and European counterparts, who disagree on whether it is conclusively proven to be an older human site.

In 2004, worked stone tools were found at Topper in South Carolina that have been dated by radiocarbon techniques possibly to 50,000 years ago. But, there is significant scholarly dispute regarding these dates. Scholars agree that evidence of humans at the Topper Site date back to 22,900 cal yr BP.

A more substantiated claim is that of Paisley Caves, Oregon, where rigorous carbon-14 and genetic testing appear to indicate that humans related to modern Native Americans were present in the caves over 1000 C years before the earliest evidence of Clovis. Traces and tools made by another people, the "Western Stemmed" tradition, were documented.

A study published in *Science* presents strong evidence that humans occupied sites in Monte Verde, Chile, at the tip of South America, as early as 13,000 years ago. If this is true, then humans must have entered North America long before the Clovis culture – perhaps 16,000 years ago.

The Tlapacoya site in Mexico is located along the base of a volcanic (remnant) hill on the shore of the former Lake Chalco. Seventeen excavations along the base of Tlapacoya Hill between 1956 and 1973 uncovered piles of disarticulated bones of bear and deer that appeared to have been butchered, plus 2,500 flakes and blades presumably from the butchering activities, plus one unfluted spear point. All were found in the same

stratum containing three circular hearths filled with charcoal and ash. Bones of many other animal species were also present, including horses and migratory waterfowl. Two uncalibrated radiocarbon dates on carbon from the hearths came in around 24,000 and 22,000 years ago. At another location, a prismatic microblade of obsidian was found in association with a tree trunk radiocarbon dated (uncalibrated) at roughly 24,000 years ago. This obsidian blade has recently been hydration dated by Joaquín García-Bárcena to 22,000 years ago. The hydration results were published in a seminal article that deals with the evidence for pre-Clovis habitation of Mexico.

Coastal migration route

Studies of the mitochondrial DNA of First Nations/Native Americans published in 2007 suggest that the people of the New World may have diverged genetically from Siberians as early as 20,000 years ago, far earlier than the standard theory suggests. According to one alternative theory, the Pacific coast of North America may have been free of ice, allowing the first peoples in North America to come down this route prior to the formation of the ice-free corridor in the continental interior. No evidence has yet been found to support this hypothesis except that genetic analysis of coastal marine life indicates diverse fauna persisting in refugia throughout the Pleistocene ice ages along the coasts of Alaska and British Columbia; these refugia include common food sources of coastal aboriginal peoples, suggesting that a migration along the coastline was feasible at the time. Some early sites on the coast, for example Namu, British Columbia, exhibit maritime focus on foods from an early point with substantial cultural continuity.

In February 2014, researchers reported on their DNA analysis of the remains of Anzick boy (referred to as Anzick-1) of Montana, the oldest skeleton found in the Americas and dated to 12,600 years ago. They found the mtDNA to be D4h3a, "one of the rare lineages associated with Native Americans." This was the same as the mtDNA associated with current coastal populations in North and South America.

The study team suggest that finding this genetic evidence so far inland shows that "current distribution of genetic markers are not necessarily indicative of the movement or distribution of peoples in the past." The Y haplotype was found to be Q-L54*(xM3). Further testing found that Anzick-1 was most closely related to Native American populations (see below).

Solutrean hypothesis

The controversial Solutrean hypothesis proposed in 1999 by Smithsonian archaeologist Dennis Stanford and colleague Bruce Bradley (Stanford and Bradley 2002), suggests that the Clovis people could have inherited technology from the Solutrean people who lived in southern Europe 21,000–15,000 years ago, and who created the first Stone Age artwork in present-day southern France. The link is suggested by the similarity in technology between the projectile points of the Solutreans and those found at Clovis (and pre-Clovis) sites. Its proponents point to tools found at various pre-Clovis sites in eastern North America (particularly in the Chesapeake Bay region) as progenitors of Clovis-style tools. The model envisions these people making the crossing in small watercraft via the edge of the pack ice in the North Atlantic Ocean that then extended to the Atlantic coast of France, using skills

similar to those of the modern Inuit people, making landfall somewhere around the then-exposed Grand Banks of the North American continental shelf.

In a 2008 study of the relevant paleoceanographic data, Kieran Westley and Justin Dix concluded that "it is clear from the paleoceanographic and paleo-environmental data that the Last Glacial Maximum (LGM) North Atlantic does not fit the descriptions provided by the proponents of the Solutrean Atlantic Hypothesis.

Although ice use and sea mammal hunting may have been important in other contexts, in this instance, the conditions militate against an ice-edge-following, maritime-adapted European population reaching the Americas."

University of New Mexico anthropologist Lawrence G. Straus, a primary critic of the Solutrean hypothesis, points to the theoretical difficulty of the ocean crossing, a lack of Solutrean-specific features in pre-Clovis artifacts, as well as the lack of art (such as that found at Lascaux in France) among the Clovis people, as major deficiencies in the Solutrean hypothesis.

The 3,000 to 5,000 radiocarbon year gap between the Solutrean period of France and Spain and the Clovis of the New World also makes such a connection problematic. In response, Bradley and Stanford contend that it was "a very specific subset of the Solutrean who formed the parent group that adapted to a maritime environment and eventually made it across the north Atlantic ice-front to colonize the east coast of the Americas" and that this group may not have shared all Solutrean cultural traits.

Genetic evidence of east/west dichotomy

Mitochondrial DNA analysis in 2014 has found that members of some native North American tribes have a maternal ancestry (called haplogroup X) linked to the maternal ancestors of some present-day individuals in western Asia and Europe, albeit distantly. This has also provided some support for pre-Clovis models. More specifically, a variant of mitochondrial DNA called X2a found in many Native Americans has been traced to western Eurasia, while not being found in eastern Eurasia.

Mitochondrial DNA analysis of Anzick-1 concluded that the boy belonged to what is known as haplogroup or lineage D4h3a. This finding is important because the D4h3a line is considered to be a lineage "founder", belonging to the first people to reach the Americas.

Although rare in most of today's Native Americans in the US and Canada, D4h3a genes are more common among native peoples of South America, far from the site in Montana where Anzick-1 was buried.

This suggests a greater genetic complexity among Native Americans than previously thought, including an early divergence in the genetic lineage 13,000 years ago. One theory suggests that after crossing into North America from Siberia, a group of the first Americans, with the lineage D4h3a, moved south along the Pacific coast and, over thousands of years, into Central and South America, while others may have moved inland, east of the Rocky Mountains. The apparent early divergence between North American and Central plus South American populations may or may not be associated with post-

divergence gene flow from a more basal population into North America; however, analysis of published DNA sequences for 19 Siberian populations does not favor the latter scenario.

Spearheads and DNA found at the Paisley Caves site in Oregon suggest that North America was colonized by more than one culture, and that the Clovis culture was not the first. There is evidence to suggest an east/west dichotomy, with the Clovis culture located to the east.

But in 2014, the autosomal DNA of a 12,500+-year-old infant from Montana was sequenced. The DNA was taken from a skeleton referred to as Anzick-1, found in close association with several Clovis artifacts. Comparisons indicate strong affinities with DNA from Siberian sites, and virtually rule out close affinity with European sources (the "Solutrean hypothesis"). The DNA shows strong affinities with all *existing* Native American populations, which indicated that each of them derives from an ancient population that lived in or near Siberia, the Upper Palaeolithic Mal'ta population. Mal'ta belonged to Y-DNA haplogroup R and mitochondrial macrohaplogroup U.

The data indicate that Anzick-1 is from a population directly ancestral to present South American and Central American Native American populations. This rules out hypotheses which posit that invasions subsequent to the Clovis culture overwhelmed or assimilated previous migrants into the Americas. Anzick-1 is less closely related to present North American Native American populations (including a Yaqui genetic sample), suggesting that the North American populations are basal to Anzick-1 and Central and South

American populations. The apparent early divergence between North American and Central plus South American populations might be due to post-divergence gene flow from a more basal population into North America; however, analysis of published DNA sequences of 19 Siberian populations do not suggest this scenario. Anzick-1 belonged to Y-haplogroup Q-L54(xM3), which is by far the largest haplogroup among Native Americans.

Other sites

In approximate reverse chronological order:

- Pedra Furada, Serra da Capivara National Park, in the state of Piauí, Brazil. Site with evidence of non-Clovis human remains, a rock painting rupestre art drawings from at least 12,000–6,000 BP. Hearth samples C-14 dates of 48–32,000 BP were reported in a *Nature* article (Guidon and Delibrias 1986). New hearth samples with ABOX dates of 54,000 BP were reported in the *Quaternary Science Reviews*. Paleoindian components found here, have been challenged by American researchers such as Meltzer, Adovasio, and Dillehay.
- The Monte Verde site in Chile, was occupied from 14,800 years BP, with bones and other finds dating on average 12,500 yrs BP. The earliest finds at the site were from between 32,840 and 33,900 years BP, but are controversial.
- The Bluefish Caves site in Yukon, Canada, contains bones with evidence of human cut-marks which demonstrates a human presence as early as 24,000

yr BP. The Bluefish caves are currently the oldest archaeological site in North America and offers evidence regarding the Beringia Standstill hypothesis, which states a genetically isolated human population remained in the area during the last glacial maximum and then traveled within North America and South America after the glaciers receded.

- Lagoa Santa, Minas Gerais, Brazil, is erroneously asserted to be Clovis age or even possibly Pre-Clovis in age.

The recent discussion of this site (specifically Lapa Vermelha IV) and the *Luzia* skull, reportedly 11,500 years old by Neves and Hubb, makes it clear that this date is a chronological date in years Before Present and not a raw radiocarbon date in eastern Brazil. Clovis sites mostly date between 11,500 and 11,000 radiocarbon years which means 13,000 years before present at a minimum.

"Luzia" is at least 1,000 years younger than Clovis and Lapa Vermelha IV should not be considered a Pre-Clovis site.

- Cueva del Milodón, in Patagonian Chile dates at least as early as 10,500 BP. This is a site found particularly early in the New World hunt for Early Man, circa 1896, and needs additional basic research, but 10,500 B.P. would be 1,500 years younger than Clovis, or if the dating is 10,500 RCYBP, it would still be roughly 500–700 years younger than Clovis. In either case this should not be considered a Pre-Clovis site.

- Cueva Fell and Pali Aike Crater sites in Patagonia, with hearths, stone tools and other elements of human habitation dating to at least as early as 11,000 BP.
- The Big Eddy Site in southwestern Missouri contains several claimed pre-Clovis artifacts or geofacts. *In situ* artifacts have been found in this well-stratified site in association with charcoal. Five different samples have been AMS dated to between 11,300 and 12,675 BP (Before Present).
- Taima Taima, Venezuela has cultural material very similar to Monte Verde II, dating to 12,000 years BP. Recovered artifacts of the El Jobo complex in direct association with the butchered remains of a juvenile mastodon. Radiocarbon dates on associated wood twigs indicate a minimum age of 13,000 years before the present for the mastodon kill, a dating significantly older than that of the Clovis complex in North America.
- The Page-Ladson site, on the Aucilla River in Florida has yielded evidence that a mastodon was butchered by people 15,550 calendar years BP. A cut mastodon tusk dated to 12,300 years BP had previously been found near a few *in situ* artifacts of similar age. A test pit in 1983 yielded elephant bones, bone tools, and chips from tool making. Radiocarbon dating of organic material from the pit yielded dates from 13,000 to 11,700 years BP.
- The Schaefer and Hebior mammoth sites in Kenosha County, Wisconsin indicate exploitation of this animal by humans. The Schaefer Mammoth site has over 13 highly purified collagen AMS dates and 17

dates on associated wood, dating it to 12,300–12,500 radiocarbon years before the present. Hebior has two AMS dates in the same range. Both animals show conclusive butchering marks and associated non-diagnostic tools.

- A site in Walker, Minnesota with stone tools, alleged to be from 13,000 to 15,000 years old based on surrounding geology, was discovered in 2006. However, further examination suggests that the site does not represent a human occupation.
- In a 2011 article in *Science*, Waters et al. 2011 describe an assemblage of 15,528 lithic artifacts from the Debra L. Friedkin site west of Salado, Texas. These artifacts (including 56 tools, 2,268 macrodebitage and 13,204 microdebitage) define the Buttermilk Creek Complex formation, which stratigraphically underlies a Clovis assemblage. While carbon dating could not be used to directly date the artifacts, 49 samples from the 20 cm Buttermilk floodplain sedimentary clay layer in which the artifacts were embedded were dated using optically stimulated luminescence (OSL). Eighteen OSL ages, ranging from 14,000 to 17,500 ka were obtained from this layer. The authors report "the most conservative estimate" of the age of the Buttermilk clays range from 13,200 to 15,500 ka, based on the minimum age represented by each of the 18 OSL ages.
- Human coprolites have been found in Paisley Caves in Oregon, carbon dated at 14,300 years ago. Genetic analysis revealed that the coprolites contained

mtDNA haplogroups A2 and B2, two of the five major Native American mtDNA haplogroups.

- The Mud Lake site, in Kenosha County, Wisconsin consists of the foreleg of a juvenile mammoth recovered in the 1930s. Over 100 stone tool butchering marks are found on the bones. Several purified collagen AMS dates show the animal to be 13,450 RCYBP with a range of plus or minus 1,500 RCYBP variance.
- Meadowcroft Rockshelter in southwestern Pennsylvania, excavated 1973–78, with evidence of occupancy dating back from 16,000 to 19,000 years ago.
- Cactus Hill in southern Virginia, with artifacts such as unfluted bifacial stone tools with dates ranging from c. 15,000 to 17,000 years ago.
- Sixty-eight stone and bone tools discovered in an orchard in East Wenatchee, Washington in 1987, excavated in 1988 and 1990. Five of the Clovis points are on display at the Wenatchee Valley Museum & Cultural Center.
- Serpentine Hot Springs in the Seward Peninsula, Alaska, excavated 2010-2011, with evidence of what appears to have been a backflow in migration of Clovis people who may have moved north through the ice-free corridor to settle in Western Alaska on the Bering Sea. The spear points found were a modification of Clovis, either from a northward migration or of the adoption of the technology by indigenous inhabitants.
- Pendejo Cave is a geological feature and archaeological site located in southern New Mexico.

Archaeologist Richard S. MacNeish claimed that human occupation of the cave pre-dates by tens of thousands of years the Clovis Culture.

- The Cerutti Mastodon site is a paleontological and possible archeological site located in San Diego County, California. In 2017, researchers announced that broken mastodon bones at the site had been dated to around 130,700 years ago. Others have disputed the claim that humans had modified the cobbles found at the site or had broken the bones.

Chapter 4

Cooper Bison Kill Site

The **Cooper Bison Kill Site** is an archaeological site near Fort Supply in Harper County, Oklahoma, United States. Located along the Beaver River, it was explored in 1993 and 1994 and found to contain artifacts of the Folsom tradition, including arrowheads. It is believed that these artifacts are the results of hunters killing bison in an arroyo. The hunters of this culture found the site continuously useful; the known artifacts are believed to be the results of three different hunts.

Archaeology in America described the Cooper Site as "...a gully feeding the North Canadian River," which contained evidence of three separate kills, with between twenty and thirty animals in each kill. All three kills occurred during late summer or early fall, and each kill contained the remains of cows, calves and young bulls. Tools found at the site consisted only of projectile points and large flake knives.

The site has been dated to 10,900-10,200 years ago. In 2002, the site was listed on the National Register of Historic Places.

A unique find at the site was that of a *Bison antiquus* skull, painted with a red zigzag. The Cooper Bison Skull is oldest known painted object in North America. The skull is currently in the collection of the Sam Noble Oklahoma Museum of Natural History at the Norman campus of the University of Oklahoma.

- **Oklahoma** is a state in the South Central region of the United States, bordered by the state of Texas on the south and west, Kansas on the north, Missouri on the northeast, Arkansas on the east, New Mexico on the west, and Colorado on the northwest. Partially in the western extreme of the Upland South, it is the 20th-most extensive and the 28th-most populous of the 50 United States. Its residents are known as Oklahomans (or colloquially "Okies"), and its capital and largest city is Oklahoma City.

The state's name is derived from the Choctaw words *okla* and *humma*, meaning "red people". Cyrus Byington, the 20th-century scholar credited with creating the first Choctaw-English dictionary, stresses that the "humma" is an honorific that denotes courage and bravery. Oklahoma is also known informally by its nickname, "The Sooner State", in reference to the non-Native settlers who staked their claims on land before the official opening date of lands in the western Oklahoma Territory or before the Indian Appropriations Act of 1889, which increased European-American settlement in the eastern Indian Territory. Oklahoma Territory and Indian Territory were merged into the State of Oklahoma when it became the 46th state to enter the union on November 16, 1907.

With ancient mountain ranges, prairie, mesas, and eastern forests, most of Oklahoma lies in the Great Plains, Cross Timbers, and the U.S. Interior Highlands, all regions prone to severe weather. Oklahoma is on a confluence of three major American cultural regions and historically served as a route for cattle drives, a destination for Southern settlers, and a

government-sanctioned territory for Native Americans. Twenty-five Native American languages are spoken in Oklahoma.

A major producer of natural gas, oil, and agricultural products, Oklahoma relies on an economic base of aviation, energy, telecommunications, and biotechnology. Oklahoma City and Tulsa serve as Oklahoma's primary economic anchors, with nearly two-thirds of Oklahomans living within their metropolitan statistical areas.

The **history of Oklahoma** refers to the history of the state of Oklahoma and the land that the state now occupies. Areas of Oklahoma east of its panhandle were acquired in the Louisiana Purchase of 1803, while the Panhandle was not acquired until the U.S. land acquisitions following the Mexican–American War.

Most of Oklahoma was set aside as Indian Territory before the Civil War. It was opened for general settlement around 1890—the "Sooners" were settlers who arrived before this period of official authorization. Statehood came to the poor ranching and farming state in Oklahoma, but soon oil was discovered and new wealth poured in.

Historians David Baird and Danney Goble have searched for the essence of the historical experiences of the people of Oklahoma. They find that, "The shared experiences of Oklahoma's people over time speak of optimism, innovation, perseverance, entrepreneurialism, common sense, collective courage, and simple decency. Those, not victimization, were the core values."

Before statehood

Topographically, Oklahoma is situated between the Great Plains and the Ozark Plateau in the Gulf of Mexico watershed. The western part of the state is subjected to extended periods of drought and high winds which generates Dust storms. The eastern part of the state is humid subtropical climate zone. The Dry line, an imaginary line that separates moist air from an eastern body of water and more arid air from the west, usually bisects the state and is arguably an important factor in precontact settlement.

Precontact Oklahoma

People have lived in what is now Oklahoma for millennia. The Burnham site, near Freedom in Woods County, Oklahoma is a pre-Clovis site, that is, an archaeological site dating before 11,000 years ago.

The earliest known painted object in North America, the Cooper Bison Skull, which dates between 10,900 and 10,200 radiocarbon years ago, was found in what is now Harper County, Oklahoma. Archaeologists refer to the earliest cultures as Paleo-Indians. From the Clovis culture projectile points to the Folsom tradition and breaking off into the lesser-known cultures whose artifacts and kill sites have been well documented all over the state, for example Dalton, Midland, HellGap, Alberta/Scottsbluff, and Calf Creek sites, humans were present and very active in what is now today known as the state of Oklahoma.

The Caddoan Mississippi Culture

Between AD 800 and 1450, much of the midwestern and southeastern US (including the eastern part of what is now Oklahoma) was home to a group of dynamic cultural communities that are generally known as the Mississippian culture. These cultures were agrarian, their communities often built ceremonial platform and burial mounds, and trade between communities was based on river travel. There were multiple chiefdoms that never controlled large areas or lasted more than a few hundred years.

The Caddoan Mississippian culture appears to have emerged from earlier groups of Woodland period groups, the Fourche Maline and Mossy Grove culture peoples who were living in the area around 200 BC to 800 AD. By 800 AD early Caddoan society had begun to coalesce into one of the earlier Mississippian cultures. Some villages began to gain prominence as ritual centers, with elite residences and platform mound constructions. The mounds were arranged around open plazas, which were kept swept clean and used for ceremonial occasions.

The Caddoan homeland was on the geographical and cultural edge of the Mississippian world and had similarities to both Mississippian Culture and Plains Traditions. The Caddoan communities were not as large as other eastern and southern Mississippian communities, they were not fortified, and they did not establish large, complex chiefdoms; with the possible exception of the Spiro Mounds on the Arkansas River. As complex religious and social ideas developed, some people and family lineages gained prominence over others. This

hierarchical structure is marked in the archaeological record by the appearance of large tombs with exotic grave offerings of obvious symbols of authority and prestige, such as those found in the "Great Mortuary" at Spiro.

Wichita Plains culture

Archaeologists believe that ancestors of the Wichita and Affiliated tribes occupied the eastern Great Plains from the Red River north to Nebraska for at least 2,000 years. These early Wichita people were hunters and gatherers who gradually adopted agriculture. Southern Plains villagers flourished throughout central and western Oklahoma from 900 to 1400.

About AD 900, on terraces above the Washita and South Canadian Rivers in Oklahoma, farming villages began to appear. The inhabitants of these villages grew corn, beans, squash, marsh elder, and tobacco.

They hunted deer, rabbit, turkey, and increasingly bison, and caught fish and collected mussels in the rivers. These villagers lived in rectangular thatched houses. They became numerous, with villages of up to 20 houses spaced every two or so miles along the rivers.

By 1500, Apache groups had also begun moving into the formerly Wichita areas of Oklahoma. However, it appears that the two people co-existed in the region for some time. In addition to Apache influence, the Wichita of southwestern Oklahoma appears to have had regular trade contact with tribes in current Texas and New Mexico.

Tonkawa

The Tonkawa people lived in the central Plains, and were recorded in 1601 living in what is now north-central Oklahoma near the Salt Fork of the Arkansas River and Medicine Lodge River. Their Tonkawa language is a linguistic isolate.

Plains Apache people

Plains Apache, a Southern Athabaskan-speaking people — today federally recognized as the Apache Tribe of Oklahoma — entered the Southern Plains between AD 1300 and 1500, before European and African contact.

In historic times, the Kiowa and Apache have a history that is closely related. Both were hunter-gatherers who used dogs to carry their belongings as they hunted from place to place. Both migrated from Canada to the Southwest around the time Francisco Coronado explored the Southwest and introduced the horse into the environment. And both tribes adapted their cultures to include the horse.

Once the Spanish exercised their power over the area, established trade patterns between the tribes was disrupted and the Pueblo were forced to work Spanish mission lands and care for mission flocks.

The Pueblo became subsistence laborers; they had fewer surplus goods to trade with their neighbors. The Apache quickly acquired horses, improving their mobility for quick raids on settlements.

Spanish colonists

The Hernando de Soto expedition, a group of Spanish conquistadors, are the earliest known Europeans to enter the region of Oklahoma. The expedition encountered many cultures of Caddoan languages-speakers, including the Caddo, Wichita, and Kichai peoples.

Horse culture

After obtaining horses, Comanche people entered the Southern Plains by the early 18th century, coming from the Great Basin in the West.

The Kiowa, who speak a Kiowa-Tanoan language, migrated into the Southern Plains from the Rocky Mountains. Tanoan languages are those that were spoken in the Jemez, Piro, Tiwa, and Tewa pueblos of New Mexico. Linguists who study the history of languages, however, believe that Kiowa split from the Tanoan branch over 3,000 years ago and moved to the far north.

The Kiowa and Plain Apache adopted many of the same lifestyle traits but remained ethnically distinct. They communicated using Plains Indian Sign Language.

The Kiowa and Plains Apache lived in the plains adjacent to the Arkansas River in southeastern Colorado and western Kansas and the Red River drainage of the Texas Panhandle and western Oklahoma.

The Kiowas had a highly structured tribal government. They had a yearly Sun Dance gathering and a chieftain who was

considered to be the leader of the entire tribe. There were warrior societies and religious societies that made up the Kiowa society.

Louisiana (New France)

In 1682, René-Robert Cavelier, Sieur de La Salle claimed all of the Mississippi River and its tributaries for the Kingdom of France. As such, the land that would become Oklahoma was under French control from 1682–1763 as part of the territory of Louisiana (New France). Colonization efforts primarily occurred in the northern aspects (e.g., Illinois) and the Mississippi River valley; Oklahoma would be untouched by French colonial efforts.

At the conclusion of the Seven Years' War and its North American counterpart, the French and Indian War, France was forced to cede the eastern part of the territory in 1763 to the British as part of the Treaty of Paris. France had already ceded the entire territory to the Kingdom of Spain in 1762 in the secret Treaty of Fontainebleau; the transfer to Spain was not publicly announced until 1764. Spain, which ceded Spanish Florida to the British in the Treaty of Paris in order to regain its colonies in Havana and Manila, did not contest British authority over the eastern part of French Louisiana as it desired the western portion that was adjacent to its colony of New Spain.

Spanish colonization efforts focused on New Orleans and its surroundings, and so Oklahoma remained free from European settlement during Spanish rule. In 1800, France regained sovereignty of the western territory of Louisiana in the secret

Third Treaty of San Ildefonso. But, strained by obligations in Europe, Napoleon Bonaparte decided to sell the territory to the United States.

Louisiana Purchase and Arkansas Territory

With the Louisiana Purchase in 1803, the United States acquired France's 828,000 square mile claim to the watersheds of the Mississippi River (west of the river) and Missouri River. The purchase encompassed all or part of 15 current U.S. states (including all of Oklahoma) and parts of two Canadian provinces.

Out of the Louisiana Purchase, Louisiana Territory and Orleans Territory was organized. Orleans Territory became the state of Louisiana in 1812, and Louisiana Territory was renamed Missouri Territory to avoid confusion.

Arkansas Territory was created out of the southern part of Missouri Territory in 1819. The border was established at parallel 36°30' north with the exception of the Missouri Bootheel. Arkansas Territory thus included all of the present state of Oklahoma south of this latitude. When Missouri achieved statehood in 1821, the territorial lands not included within the state's boundaries effectively became an unorganized territory. On November 15, 1824, the westernmost portion of Arkansas Territory was removed and included with the unorganized territory to the north, and a second westernmost portion was removed on May 6, 1828, reducing Arkansas Territory to the extent of the present state of Arkansas. This new western border of Arkansas was originally intended to follow the western border of Missouri due south to

the Red River. However, during negotiations with the Choctaw in 1820, Andrew Jackson unknowingly ceded more of Arkansas Territory to them than was realized. Then in 1824, after further negotiations, the Choctaw agreed to move farther west, but only by "100 paces" of the garrison on Belle Point. This resulted in the bend in the Arkansas/Oklahoma border at Fort Smith, Arkansas.

The Adams–Onís Treaty and New Spain

The Adams–Onís Treaty of 1819 was between the United States and Spain. Spain ceded the Florida Territory to the U.S., the U.S. gave fringe areas in the West to Spain, and the boundary was established between the U.S. and New Spain. The new boundary was to be the Sabine River north from the Gulf of Mexico to the 32nd parallel north, then due north to the Red River, west along the Red River to the 100th meridian west, due north to the Arkansas River, west to its headwaters, north to the 42nd parallel north, and finally west along that parallel to the Pacific Ocean. Informally this was called the "Step Boundary", although its step-like shape was not apparent for several decades. This is because the source of the Arkansas, which was believed to be near the 42nd parallel, is actually hundreds of miles south of that latitude, a fact that was not known until John C. Frémont discovered it in the 1840s.

The Adams–Onís Treaty thus delineated the southern (Red River) and primary western (100th meridian west) borders of the future state of Oklahoma. It was also by this treaty that the land comprising the Oklahoma Panhandle was separated from the rest of the future state and ceded to the Spanish government.

The Indian Relocation

The Georgia compact, which was signed in 1802, was the first of many treaties and bills signed to remove the native people from their land. The Georgia compact, in particular, took away the native people's right to their land and promised to move them out in exchange for the western lands of Georgia. The beginning of the United States expansion into the west began with the Louisiana purchase. The Georgia compact was the start of a long series of treaties and bills that were signed to remove the natives from their land so that the U.S. could expand.

In the early history of the United States as a nation, a challenging issue was the management of frontier settlement in the traditional lands of the Native Americans. One approach to obtain land in or near the established states was to relocate tribes to unsettled territory further west. In 1820 (Treaty of Doak's Stand) and 1825 (Treaty of Washington City), the Choctaw were given lands in the Arkansas Territory (including in the current state of Oklahoma) in exchange for part of their homeland, primarily in the state of Mississippi.

The Indian removal act was passed in 1830 which allowed president Jackson to make treaties with the various tribes east of the Mississippi river, for their land in exchange for new land in the west. Those who wished to stay behind were required to assimilate and become citizens in their state. For the tribes that agreed to Jackson's terms, the removal was peaceful, however, those who resisted were eventually forced to leave.[14]

The five civilized tribes consisted of the Choctaw, Seminole, Creek, Cherokee, and the Chickasaw, and were called this because they had assimilated best to the white culture at the time. These tribes did not want to leave their established lands and homes, as they had set up more advanced settlements than other tribes but were forced to move nonetheless.

Part of what became Oklahoma was designated as the home for the relocation of the Five Civilized Tribes; it was "at the time the only available location where the Indians would not be in the way of white expansion." Later the area would be referred to as Indian Territory.

The Choctaw was the first of the "Five Civilized Tribes" to be removed from the southeastern United States. In September 1830, Choctaws in Mississippi agreed to terms of the Treaty of Dancing Rabbit Creek and prepared to move west. The phrase "Trail of Tears" originated from a description of the removal of the Choctaw Nation in 1831, although the term is also used in reference to the Cherokee removal in 1838–39.

The Creek refused to relocate and signed a treaty in March 1832 to open up a large portion of their land in exchange for protection of ownership of their remaining lands. The United States failed to protect the Creeks, and in 1837, they were militarily removed without ever signing a treaty.

The Chickasaw saw the relocation as inevitable and signed a treaty in 1832 which included protection until their move. The Chickasaws were forced to move early as a result of white settlers and the War Department's refusal to protect the Indian's lands.

In 1833, a small group of Seminoles signed a relocation treaty. However, the treaty was declared illegitimate by a majority of the tribe. The result was the Second Seminole War (1835–42) and Third Seminole War (1855–58). Those that survived the wars eventually were paid to move west.

The Treaty of New Echota of 1835 gave the Cherokees living in the state of Georgia two years to move west, or they would be forced to move. At the end of the two years only 2,000 Cherokees had migrated westward and 16,000 remained on their lands. The U.S. sent 7,000 soldiers to force the Cherokee to move without the time to gather their belongings. This march westward is known as the Trail of Tears, in which 4,000 Cherokee died.

The many tribes that were moved to the Indian territory or present-day Oklahoma are Absentee Shawnee, Alabama-Quassarte (Koasati), Anadarko (Nadaco), Caddo, Catawba (moved voluntarily to Choctaw Nation), Cherokee, Chickasaw, Choctaw, Comanche, Delaware-Western, Eastern Shawnee, Hainai, Keechi (Kichai), Kialegee, Moingwena, Muscogee (Creek), Piankashaw, Quapaw, Seminole, Seneca-Cayuga (including Conestoga, Erie), Shawnee, Eastern, Tawakoni, Thlopthlocco, United Keetoowah, Wichita, Yuchi (Euchee) The removal of the tribes did not stop with the civil war but was merely delayed.

The tribes that were moved after the civil war are, Apache, Lipan, Arapaho, Cheyenne, Potawatomi, Comanche, Delaware, Eastern, Fort Sill Apache, Iowa, Kaw (Kansa), Kickapoo, Kiowa, Miami (including Eel River Indians), Modoc, Nez Perce, Otoe-Missouria, Ottawa, Osage, Pawnee, Peoria (including Cahokia,

Illinois, Kaskaskia, Michigamea, Tamaroa), Ponca, Sac and Fox, Shawnee, Stockbridge-Munsee, Tonkawa, Waco, Wea, Wyandotte

Republic of Texas and Kansas Territory

In 1821, New Spain gained its independence and became the short-lived Mexican Empire, followed by the Mexican Republic in 1824. Thus Mexico was the new owner of the lands to the south and west of the U.S. Territories. Texas, a province within Mexico, declared its independence from Mexico in 1836 following the Texas Revolution. The Republic of Texas existed as a separate country from 1836 to 1845.

Texas was annexed as a state into the United States in 1845, and the Mexican–American War followed from 1846–1848. The war was concluded by the Treaty of Guadalupe Hidalgo, in which the U.S. received the lands contentiously claimed from Mexico by Texas (including the Oklahoma Panhandle), as well as lands west of the Rio Grande to the Pacific Ocean (the Mexican Cession). Statehood for Texas was politically charged, as it added another "slave state" to the Union, and the conditions for its statehood were not resolved until the Compromise of 1850. One of the conditions was that to be admitted as a slave state,

Texas had to set its northern border at parallel 36°30' north as per the Missouri Compromise. In addition to relinquishing claims on lands north of this parallel, Texas also had to give up its claim to parts of what is now New Mexico east of the Rio Grande, however, in exchange, the U.S. assumed Texas' \$10 million debt.

On May 30, 1854, the Kansas and Nebraska Territories were established from the Indian Territory. The southern boundary of the Kansas Territory was set at the 37th parallel north, establishing the northern border of the future state of Oklahoma. This also resulted in an unassigned strip of land existing between Kansas's southern border and the northern border of the Texas Panhandle at 36°30' north, a neutral strip or "No Man's Land" that eventually became the Oklahoma Panhandle.

Civil War

The civil war was another terrible period for the civilized tribes, as they had only just begun to rebuild and then the civil war ignited old conflicts. In 1860, the Indian Territory had a population of 55,000 Indians, 8,400 black slaves owned by Indians, and 3000 whites. In 1861, as the American Civil War began, Texas forces moved north and the United States withdrew its military forces from the territory. Confederate Commissioner Albert Pike signed formal treaties of alliance with all the major tribes, and the territories sent a delegate to the Confederate Congress in Richmond.

The Cherokee were the only tribe to not go into a treaty with Pike, however, the US government did little to support them in this conflict. Lt. Col. William H. Emory in charge of the Union troops, abandoned many forts, including Washita, Arbuckle, and Cobb, and then retreated to Kansas, leaving the Union supporters with little help to fend off the many Confederate troops. However, there were minority factions who opposed the Confederacy, with the result that a small-scale Civil War raged inside the territory. A force of Union troops and loyal Indians

invaded Indian Territory and won a strategic victory at Honey Springs on July 17, 1863. By late summer 1863, Union forces controlled Fort Smith in neighboring Arkansas, and Confederate hopes for retaining control of the territory collapsed. Many pro-Confederate Cherokee, Creek, and Seminole Indians fled south, becoming refugees among the Chickasaw and Choctaws. However, Confederate Brigadier General Stand Watie, a Cherokee, captured Union supplies and kept the insurgency active. Watie was the last Confederate general to give up; he surrendered on June 23, 1865.

During the Civil War, Congress passed a statute (still in effect) that gave the President the authority to suspend the appropriations of any tribe if the tribe is "in a state of actual hostility to the government of the United States ... and, by proclamation, to declare all treaties with such tribe to be abrogated by such tribe." (25 USC Sec. 72)

Post-Civil War Period

In 1866 the federal government forced the tribes that had allied with the Confederacy into new Reconstruction Treaties. Most of the land in central and western Indian Territory was ceded to the government.

Some of the land was given to other tribes, but the central part, the so-called Unassigned Lands, remained with the government. Another concession allowed railroads to cross Indian lands. Furthermore, the practice of slavery was outlawed. Some nations were integrated racially with their slaves, but other nations were extremely hostile to the former slaves and wanted them exiled from their territory. It was also

during this time that the policy of the federal government gradually shifted from Indian removal and relocation to one of assimilation.

In the 1870s, a movement began by whites and blacks wanting to settle the government lands in the Indian Territory under the Homestead Act of 1862.

They referred to the Unassigned Lands as *Oklahoma* and to themselves as "Boomers". In 1884, in *United States v. Payne*, the United States District Court in Topeka, Kansas, ruled that settling on the lands ceded to the government by the Indians under the 1866 treaties was not a crime. The government at first resisted, but Congress soon enacted laws authorizing settlement.

In the 1880s, early settlers of the state's very sparsely populated Panhandle region tried to form the Cimarron Territory but lost a lawsuit against the federal government. This prompted a judge in Paris, Texas, to unintentionally create a moniker for the area. "That is land that can be owned by no man", the judge said, and after that the panhandle was referred to as No Man's Land until statehood arrived decades later.

Congress passed the Dawes Act, or General Allotment Act, in 1887 requiring the government to negotiate agreements with the tribes to divide Indian lands into individual holdings. Under the allotment system, tribal lands left over would be surveyed for settlement by non-Indians. Following settlement, many whites accused Republican officials of giving preferential treatment to ex-slaves in land disputes.

The Land Run of 1889

The United States entered into two new treaties with the Creeks and the Seminoles. Under these treaties, tribes would sell at least part of their land in Oklahoma to the U.S. to settle other Indian tribes and freemen.

This land would be widely called the Unassigned Lands or Oklahoma Country in the 1880s due to it remaining uninhabited for over a decade.

In 1879, part-Cherokee Elias C. Boudinot argued that these Unassigned Lands be open for settlement because the title to these lands belonged to the United States and "whatever may have been the desire or intention of the United States Government in 1866 to locate Indians and negroes upon these lands, it is certain that no such desire or intention exists in 1879.

The Negro since that date, has become a citizen of the United States, and Congress has recently enacted laws which practically forbid the removal of any more Indians into the Territory".

On March 23, 1889, President Benjamin Harrison signed legislation that opened up the two million acres (8,000 km²) of the Unassigned Lands for settlement on April 22, 1889. It was to be the first of many land runs, but later land openings were conducted by means of a lottery because of widespread cheating—some of the settlers were called Sooners because they had already staked their land claims before the land was officially opened for settlement.

Indian and Oklahoma Territories

Indian Territory (lands owned by the Five Civilized Tribes and other Indian tribes from east of the Mississippi River) and Oklahoma Territory (lands set aside to relocate Plains Indians and other Midwestern tribes, as well as the recently settled "Unassigned Lands" and the Neutral Strip) were formally constituted by Congress on May 2, 1890, in the Oklahoma Organic Act. An *Organic Act* is a statute used by the U.S. Congress to create organized incorporated territories in anticipation of them being admitted to the Union as state(s). The following 16 years saw Congress pass several laws whose purpose was to join Oklahoma and Indian territories into a single State of Oklahoma.

Land Runs (1891–1895)

In 1893, the government purchased the rights to settle the Cherokee Outlet, or Cherokee Strip, from the Cherokee Nation. The Cherokee Outlet was part of the lands ceded to the government in the 1866 treaty, but the Cherokees retained access to the area and had leased it to several Chicago meat-packing plants for huge cattle ranches. The Cherokee Strip was opened to settlement by land run in 1893. Also in 1893 Congress set up the Dawes Commission to negotiate agreements with each of the Five Civilized Tribes for the allotment of tribal lands to individual Indians. Finally, the Curtis Act of 1898 abolished tribal jurisdiction over all of Indian Territory.

Angie Debo's landmark work, *And Still the Waters Run: The Betrayal of the Five Civilized Tribes* (1940), detailed how the

allotment policy of the Dawes Commission and the Curtis Act of 1898 was systematically manipulated to deprive the Native Americans of their lands and resources. In the words of historian Ellen Fitzpatrick, Debo's book "advanced a crushing analysis of the corruption, moral depravity, and criminal activity that underlay white administration and execution of the allotment policy."

Oklahoma is best known to the rest of the world for its frontier history, famously represented in the 1943 Broadway hit musical *Oklahoma!* and its 1955 cinema version. The musical is based on Lynn Riggs' 1931 play, *Green Grow the Lilacs*. It is set in Oklahoma Territory outside the town of Claremore in 1906.

Statehood

In 1902, the leaders of Indian Territory sought to become their own state, to be named Sequoyah. They held a convention in Eufaula, consisting of representatives from the Cherokee, Choctaw, Chickasaw, Muscogee (Creek), and Seminole tribes, known as the Five Civilized Tribes. They met again next year to establish a constitutional convention.

The Sequoyah Constitutional Convention and statehood attempt

The Sequoyah Constitutional Convention met in Muskogee, on August 21, 1905. General Pleasant Porter, Principal Chief of the Muscogee Creek Nation, was selected as president of the convention. The elected delegates decided that the executive officers of the Five Civilized Tribes would also be appointed as

vice-presidents: William Charles Rogers, Principal Chief of the Cherokees; William H. Murray, appointed by Chickasaw Governor Douglas H. Johnston to represent the Chickasaws; Chief Green McCurtain of the Choctaws; Chief John Brown of the Seminoles; and Charles N. Haskell, selected to represent the Creeks (as General Porter had been elected President).

The convention drafted the constitution, established an organizational plan for a government, outlined proposed county designations in the new state, and elected delegates to go to the United States Congress to petition for statehood. If this had happened, the Sequoyah would have been the first state to have a Native American majority population.

The convention's proposals were overwhelmingly endorsed by the residents of Indian Territory in a referendum election in 1905. The U.S. government, however, reacted coolly to the idea of Indian Territory and Oklahoma Territory becoming separate states; they preferred to have them share a singular state.

Murray's Proposal

Murray, known for his eccentricities and political astuteness, foresaw this possibility prior to the constitutional convention. When Johnston asked Murray to represent the Chickasaw Nation during Sequoyah's attempt at statehood, Murray predicted the plan would not succeed in Washington, D.C. He suggested that if the attempt failed, the Indian Territory should work with the Oklahoma Territory to become one state. President Theodore Roosevelt and Congress turned down the Indian Territory proposal.

Seeing an opportunity for statehood, Murray and Haskell proposed another convention for the combined territories to be named Oklahoma. In 1906, the Oklahoma Enabling Act was passed by the U.S. Congress and approved by President Roosevelt. The act established several specific requirements for the proposed constitution. Using the constitution from the Sequoyah convention as a basis (and the majority) of the new state constitution, Haskell and Murray returned to Washington with the proposal for statehood. On November 16, 1907, President Theodore Roosevelt signed the proclamation establishing Oklahoma as the nation's 46th state.

After statehood

The early years of statehood were marked with political activity. In 1910, the Democrats moved the capital to Oklahoma City, three years before the Oklahoma Organic Act allowed, in order to move away from the Republican hotbed of Guthrie. Socialism became a growing force among struggling farmers, and Oklahoma grew to have the largest Socialist population in the United States at the time, with the Socialist vote doubling in every election until the American entry into World War I in 1917. However, the war drove food prices up, allowing the farmers to prosper, and the movement faded away. By the 1920s, the Republican Party, taking advantage of rifts within the Democratic Party, gained control in the state. The economy continued to improve, in the areas of cattle ranching, cotton, wheat, and especially, oil. Throughout the 1920s, new oil fields were continually discovered and Oklahoma produced over 1.8 billion barrels of petroleum, valued at over 3.5 million dollars for the decade.

Education

By 1891 Oklahoma had 21,335 people in school out of about 61,832 people. In 1901 the number of children old enough to be able to go to school had increased to 145,843, but only about 116,971 could actually attend school. It was harder for the rural population to get to schools as there weren't as many or nearly as much support for them in non-municipal areas. These schools were often parent funded and were much smaller than the schools we have today being that they were normally only about one room. "In 1908 Rev. E. D. Cameron, the state's first superintendent of public instruction, summarized the status of education from 1890 to 1907.

He noted that "the rural district school is the foundation. . . . thousands of our citizens will never go to any other school, and if there should be no district school in reach of them they may never go to any school at all. . . . We will have enrolled this scholastic year not less than 140,000 children who never entered a public schoolhouse before and a vast majority of whom never attended a school of any kind a single day. It is the duty of the State to make these schools so strong that they will at least give a glimpse of real education and create a thirst for learning that will carry the student up and through life."

In 1907, the Oklahoma constitution required that all students get a free and public education. However, only grades one through eight were offered and African American children were taught separately in different schools. In order to get more use out of the schools, as they did cost money to maintain and were not in constant use, they would offer adult schooling during these times where they were not in use such as the

weekends. This would entail various lectures on topics such as science and literature, political discussions and various trade demonstrations, such as showing how to do different tasks at home or the farm. This got the community more involved with schools and better showed their importance to more people.

Oklahoma began consolidating schools in 1903, and the Superintendent's reasoning behind this was to "better improve the quality of buildings, curricula, student interaction, adult education and country roads". The laws for schools in 1913 had this to say about curriculum, "in each and every school district there shall be taught: agriculture, orthography, reading, penmanship, English, grammar, physiology and hygiene, geography, U.S. history and civics, arithmetic, and other such branches as may be determined by the State Board of Education. "Starting in the 1910's Oklahoma began to adopt a "Model School Program" to help improve rural education.

Oklahoma followed trends from the rest of the country after World War 1 and combined many districts into one building, and others started splitting the grades one through six and seven through twelve. Oklahoma put a tax levy into place so a poor school district would get some money per child so that it could meet the model school standards.

A Lawton educator named Haskell Pruett helped the Oklahoma State Department of Education implement standards for buildings, certifications, teacher training, and curriculum. "Facilities upgrades included such mundane items as bookcases, lunch cupboards, first-aid cabinets, drinking fountains, toilets, playground equipment, "storm caves," teachers' homes, gymnasias, outhouses, septic tanks, and water

supply.” There were also plans for larger schools with more than one room. In 1918 there were 5,783 total districts, of which 5,178 were rural one-school districts, 408 were rural consolidated or union graded in rural areas, and 197 were independent districts in cities. Ten years later, in 1928 there were 5,095 districts; of these, 4,350 were rural one-school districts, 394 were rural consolidated or union, and 351 were urban independent. Change was gradual, but persistent.

Starting in the 1950’s, more districts began using the high school method of schooling. In 1989 the Voluntary School Consolidation Act was passed, which meant that a district could consolidate voluntarily, or be mandated to by the government. By 2015 the number of school districts was only 521. This was caused by both mandatory and voluntary consolidation, and only half of the state's 1,800 schools were rural. In 2017 there were about 96 rural elementary schools who are represented by the Organization of Rural Elementary Schools.

OEA (Oklahoma Educator's Association)

The OTA (Oklahoma teacher association) was created in Guthrie Oklahoma in October of 1889 and then years later in 1906 the Indian territory teachers’ association joined them and the OEA (Oklahoma educator’s association) was formed in 1918. OEA works to increase teacher salaries, along with school funding in general and retirement for teachers. The first president of the organization was elected in 1889 and his name was Frank Terry. During the 1950’s a new building was constructed for the association, and it was also around this time that they started pushing for all teachers to hold at least

a baccalaureate degree to teach. In 1957 it was required for all teachers to hold a college degree. OEA is the first organization to impose sanctions on their respective state twice. They did this in order to provide better funding for schools. In 1970 the organization helped pass the Professional Negotiations Act, allowing teachers to negotiate their contracts with school boards. In 1980 they helped pass the Education Reform Act. They did this again in 1990, providing \$560 million to be spent on schools over five years. By 2000 they had helped get all school employees fully-paid individual health insurance.

Segregation in the University of Oklahoma

In 1948 sixty-one year old African American man George W. McLaurin applied to the University of Oklahoma. He wanted to earn his doctorate but the only all African American school in Oklahoma at the time was Langston University, which did not offer any graduate programs. Due to the verdict of *Sipuel v. Board of Regents*, they were motivated to apply to the university. “In that case, the Court declared that because black Oklahomans had no access to legal training at a state institution while whites had studied law at the University for decades, Oklahoma was obligated, under the “equal protection” clause of the Fourteenth Amendment, to provide Ada Lois Sipuel Fisher the opportunity for a legal education substantially equal to that provided to whites.”

Segregation had been a part of Oklahoma’s school system for quite awhile, starting in 1907 during statehood, and even much longer before in the territory days. In 1941 Oklahoma began implementing policies that made it increasingly difficult for blacks to go earn their education. These included fines for

administrators who enrolled a black student in a white school, for teachers who taught in a mixed-race class, and for students who willingly went to those classrooms. With the backing of the NAACP, and his lawyers, McLaurin got the three-judge federal district court for the western district of Oklahoma, to rule that McLaurin was allowed into the graduate program, as long as it was allowed to white students. In 1941 that same court ruled that the various fines against schools and teachers for teaching black students were unconstitutional.

However, they also added “This does not mean, however, that the segregation laws of Oklahoma are incapable of enforcement.” This meant that McLaurin would be segregated from the rest of the students, and have certain areas such as library tables and a bathroom, that only he could use, even though he was allowed into the school.

Despite the conditions, other African Americans were motivated by this to apply to the university. Two more African American students joined McLaurin for the second semester. There began to be more and more of an outcry for the state legislature to get involved and change how the university was treating their black students. This caused House Bill 405 to be passed. “House Bill 405 provided that qualified African American students desiring a field of graduate study not available at Langston could automatically enter a state (white) college or university offering that field.” However, the students were still to be segregated. Only days after McLaurin’s first class in his own alcove, Thurgood Marshall, lead attorney for the NAACP, arrived in Oklahoma to help. Ten days later they were in court. All they asked was that McLaurin be treated exactly the same as any other student. The court ruled against him as they were

providing him with the same educational facilities. McLaurin's lawyers quickly took their case and appealed to the supreme court.

This case would be paired with two other similar cases. Another NAACP case from a Texas school where Herman Marion Sweatt wanted to go to the University of Texas law school. Instead of admitting him they created an entirely new and much worse version of the school.

The other case was not with the NAACP but involved discrimination against a black passenger of a railcar. On June 5th 1950, by a unanimous vote the supreme court ruled against segregation. They did not however, overturn Plessy V. Ferguson.

They did say that segregation was unconstitutional but not because Plessy V. Ferguson was wrong but because by McLaurin being separated from the other students, this was violating his equal protection from the fourteenth amendment. They said that he was "handicapped in his pursuit of effective graduate instruction. Such restrictions impair and inhibit his ability to study, to engage in discussions and exchange views with other students, and in general, to learn his profession."

The administrators at the university were relieved as they could finally get rid of the restrictions that they called "embarrassing compromises with decency and justice" such as "colored only" signs or a wall in the stadium dividing the groups. On June 6th 1950, Ada Louis Sipuel after being put in the back of the class when she was admitted to the university a year earlier, moved to the front of the class because now she was allowed to.

By the end of the 1949-1950 academic year, 150 African American students were enrolled, 118 women and 23 men, then by July 1951 there were 314 African American students enrolled.

Oil

Oil wells have been used by the native people for many years as medicine. Word of these seeps of black medicine attracted the attention of many people and by the 1850s people from all around were coming to see what these seeps of black medicine were.

The first oil business was founded in 1872 by Robert M. Darden but ultimately failed due to the federal officials not recognizing non-native leases. Although oil was encountered in the 1850s, near salina, Oklahoma's first commercial oil well was drilled near Bartlesville in 1896. It got so successful that it had to be sealed as it was flooding the market. The Glen Pool oil reserve was opened in 1905 and was later known to be one of the largest oil wells in Oklahoma history. It was so large it spawned many large oil companies including Gulf, and Sinclair. Huge pools of underground oil discoveries followed with the Glenn Pool Oil Reserve, the Cushing Oil Field, Three Sands, the Healdton Oil Field, the Oklahoma City Oil Field, and the Burbank Oil Field in Osage County, followed in 1926 by the Greater Seminole Oil Field.

During the Great Depression, oil from Oklahoma and Texas flooded the market and prices fell to pennies a gallon. In 1931, Governor William H. Murray used the National Guard to shut down all of Oklahoma's oil wells in an effort to stabilize prices.

The national policy began using the Texas Railroad Commission to set allotments in Texas, which raised prices as well for Oklahoma crude.

Prosperous 1920s

The prosperity of the 1920s can be seen in the surviving architecture from the period, such as the Tulsa mansion which was converted into the Philbrook Museum of Art or the art deco architecture of downtown Tulsa.

Kate Bernard

In the 1920s, Democrat Kate Bernard campaigned for social justice and devoted her life to the underprivileged. She helped underpaid, unskilled workers form their own union in Oklahoma City. However, after being elected to office, those who supported her banned Bernard from the House chamber. In 1916, Bernard withdrew herself from public life and sixteen years later she died.

African Americans

For Oklahoma, the early quarter of the 20th century was politically turbulent. Many different groups had flooded into the state; "black towns", or towns made of groups of African Americans choosing or being forced to live separately from white people, sprouted all over the state, while most of the state abided by the Jim Crow laws within each individual city, racially separating people with a bias against any non-white "race". Greenwood, a neighborhood in Northern Tulsa, was known as Black Wall Street because of the vibrant business,

cultural, and religious community there. The area was destroyed in the 1921 Tulsa race massacre, one of the United States' deadliest race massacres.

While many all-Black towns sprang up in the early days of Oklahoma, many have disappeared. The table below lists 13 such towns that have survived to the present.

From 1897 to 1957, the state legislature imposed a great many Jim Crow laws:

- 1897 The state established separate school districts for Black and White students.
- 1907 Prospective voters were required pass a literacy test to read aloud a portion of the state constitution.
- 1908 Railroads were required to provide separate railcars for Black and White passengers. In the same year, marriage between White and Black persons was made a felony.
- 1921 Marriage between Native American and Black people was made a felony.
- 1925 Black and White bands were prohibited from marching in the same parades.
- 1954 Mines were required to provide racially-segregated restrooms underground.
- 1957 Required persons wishing to adopt a child state their race.

Tulsa Race Massacre

- On May 30th, 1921, an incident occurred between a young black man named Dick Rowland and a white

woman, Sarah Page. What actually happened is not entirely certain but the assumption was that Rowland assaulted Page. Rowland was arrested the next day. Word of the incident quickly spread and it incited an armed white mob to demand Rowland be turned over; the sheriff and his men refused and barricaded the top floor of the building. Armed members of the black community also showed up to assist in the protection of Rowland. The white rioters came to outnumber the black civilians, who retreated to the Greenwood district. Beginning on June 1st, 1921, the white rioters proceeded to burn and loot the district. Martial law was declared and National guardsmen began locking up all black Tulsans who were not already being ‘interned’. Over 6,000 people were held, and some of them were held for as many as 8 days. The Greenwood district was destroyed in less than 24 hours, with reports stating that about 800 people were injured and as many as 300 people were dead.

Socialists

The Oklahoma Socialist Party achieved a large degree of success in this era (the small party had its highest per-capita membership in Oklahoma at this time with 12,000 dues-paying members in 1914), including the publication of dozens of party newspapers and the election of several hundred local elected officials. Much of their success came from their willingness to reach out to Black and American Indian voters (they were the only party to continue to resist Jim Crow laws), and their willingness to alter traditional Marxist ideology when it made

sense to do so (the biggest changes were the party's support of widespread small-scale land ownership, and their willingness to use religion positively to preach the "Socialist gospel"). The state party also delivered presidential candidate Eugene Debs some of his highest vote counts in the nation.

The party was later crushed into virtual non-existence during the "white terror" that followed the ultra-repressive environment following the Green Corn Rebellion and the World War I era paranoia against anyone who spoke against the war or capitalism.

The Industrial Workers of the World tried to gain headway during this period but achieved little success.

Impeachment of Governor Walton

Disgruntled Oklahoma farmers and laborers handed left-wing Democrat Jack C. Walton an easy election victory in 1922 as governor. One scandal followed another—Walton's questionable administrative practices included payroll padding, jailhouse pardons, removal of college administrators, and an enormous increase in the governor's salary. The conservative elements successfully petitioned for a special legislative recall session. To regain the initiative, Walton retaliated by attacking Oklahoma's Ku Klux Klan with a ban on parades, declaration of martial law, and employment of outsiders to 'keep the peace.' He declared martial law in the entire state and tried to call out the National Guard to block the legislature from holding the special session. Walton's efforts failed, legislators charged Walton with corruption, impeached him, and removed him from office in 1923.

Great Depression

The Great Depression lasted from 1929 to the late 1930s. Times were especially hard in 1930–33, as the prices of oil and farm products plunged, while debts remained high. Many banks and businesses went bankrupt. The Depression was made much worse for parts of the state by the Dust Bowl conditions. Farmers were hit the hardest and many relocated to the cities and established poor communities known as Hoovervilles. It also initiated a mass migration to California of "Okies" (to use the disparaging term common in California) in search of a better life, an image that would be popularized in American culture by John Steinbeck's novel, *The Grapes of Wrath*.

The book, with photographs by Dorothea Lange, and songs of Woody Guthrie tales of woe from the era. The negative images of the "Okie" as a sort of rootless migrant laborer living in a near-animal state of scrounging for food greatly offended many Oklahomans.

These works often mix the experiences of former sharecroppers of the western American South with those of the Exodusters fleeing the fierce dust storms of the High Plains. Although they primarily feature the extremely destitute, the vast majority of the people, both staying in and fleeing from Oklahoma, suffered great poverty in the Depression years. *Grapes of Wrath* was a powerful but simplistic view of the complex conditions in rural Oklahoma, and fails to mention the great majority of people remained in Oklahoma. The federal Agricultural Adjustment Act paid them to reduce production; prices rose and the distress was over,

Dust Bowl

Short-term drought and long-term poor agricultural practices led to the Dust Bowl when massive dust storms blew away the soil from large tracts of arable land and deposited it on nearby farms or even far-distant locations. The resulting crop failures forced many small farmers to flee the state altogether. Although the most persistent dust storms primarily affected the Panhandle, much of the state experienced occasional dusts, intermittent severe drought, and occasional searing heat. Towns such as Alva, Altus, and Poteau each recorded temperatures of 120 °F (49 °C) during the epic summer of 1936.

World War II

The economy was clearly recovering by 1940, as farm and cattle prices rose. So did the price of oil. Massive Federal spending on infrastructure during the Depression was also beginning to show payoffs. Even before World War II broke out, the Oklahoma industrial economy saw increased demand for its products. The Federal government created such defense-related facilities as the Oklahoma Ordnance Works near Pryor, Oklahoma and the Douglas Aircraft plant adjacent to the Tulsa Municipal Airport. Numerous airbases dotted the map of Oklahoma. (See Oklahoma World War II Army Airfields).

Robert S. Kerr, governor 1943–46 was an oilman who supported the New Deal and used his network of connections in Washington to secure federal money. Oklahoma built and expanded numerous army and navy installations and air bases, which in turn brought thousands of well-paid jobs. Kerr went

on to become a powerful Senator (1949–63) who watched out for the state's interests and especially for the oil and gas industry.

Oklahoma consistently rated among the top 10 states in war-bond sales, as it used showmanship, the spirit of competition, house-to-house solicitations, and direct appeals to big business to mobilize patriotism, state pride, and the need to save some of the high wages that could not be spent because of rationing and shortages. The bond drives enlisted schoolchildren, housewives and retired men, giving everyone a sense of direct participation in the war effort.

Civil Rights Movement in Oklahoma

Pre-Cursor to the Civil Rights Era: A Brief History of Black Activism in Oklahoma Previous to the Civil Rights Era

Because of the prejudice and unfair treatment under segregation that had divided Oklahoma since 1910 with the "grandfather clause" and the national Jim Crow laws, civil rights groups began making movement in Oklahoma even before the technical civil rights era of the 1960's. African Americans experienced many counts of racial violence nationwide and in Oklahoma Specifically, even after gaining their "freedom" after the civil war. The results of the civil war, although it freed African Americans from slavery, did not prevent the inequality and prejudice freed black people would have to face in America. Oklahoma was no stranger to the nationwide inequality and segregation that the grandfather

clause and later, Jim Crow Laws, caused. Specifically, the Tulsa Race Massacre of 1921, that saw over 1,500 houses burnt or looted and 35 dead. The NAACP came to Oklahoma in 1913 with the establishment of the Oklahoma City branch, creating quickly expanding areas for African Americans to express their beliefs and work to gain their freedom. Black newspapers advocated for protections in education, legal actions against Jim Crow laws, and community building in Oklahoma. Along with this, multiple groups of Black Activists spread their information via newspapers. Notable editors of these newspapers include Roscoe Dunjee, who continued to fight for equal rights well into the nationally recognized civil rights era, including fighting for equal pay post WWII and advocating for Ada Louis Sipuel in the *Sipuel v. Board of Regents of the University of Oklahoma* case (1948), the case that ultimately allowed black students to attend the University of Oklahoma, though segregated .

Because of the efforts of black journalists prior to the civil rights era, black solidarity in Oklahoman communities continued to grow stronger. Clubs such as the Prince Hall Masons and The Oklahoma State Federation of Colored Women's Clubs, that had been around previous to Oklahomas official statehood, continued to fraternize and fight for racial equality in Oklahoma. The women auxiliary group of the Prince Hall Masons, the Eastern Star, additionally worked to provide educational support to black students and created new citizen programs in Oklahoma.

The outcome of the well-known Brown v Board of Education Supreme Court case made waves across the country in dismantling educational segregation along with the social

standing of Jim Crow laws. Oklahomans not only accepted the change, being compliant with the new law, but encouraged it with the passing of the provisional constitutional Better Schools Amendment in 1955 under Governor Raymond Gary, which made it strictly illegal for schools to practice any form of segregation in the state of Oklahoma. However, this decision did not ultimately remove Jim Crow laws, nor did it end all segregation, as all other

The decision of *Brown v Board of education* acted as one of the catalyst for the emergence of the Civil Rights era, the court case was quickly followed by the actions of Rosa Parks inspiring the Montgomery Bus Boycott, nationwide sit-ins to protest public segregation, and the rise of Rev. Dr. Martin Luther King Jr. and Malcolm X as prominent civil rights leaders with differing civil rights agendas.

The Civil Rights Era in Oklahoma: Activism, Counterculture, and Leaders 1955-1970

With Martin Luther King's nonviolent views at the forefront of civil rights protests, Oklahoma saw multiple forms of peaceful and effective protests from varying members of the state. One of the most prominent members of Oklahoma's civil rights movement was Clara S. Luper, the leader of the NAACP youth council of Oklahoma.

One of Clara Luper's prominent efforts for the fight for civil rights in Oklahoma is the Katz Drug-Store sit-in of 1958, in protest of the segregation of public areas and dining establishments. Super, along with the other youth of the NAACP, sat down in "whites only" areas of the drug store and

ordered food and drink as a nonviolent way to display their discontent and lack of toleration towards segregation. Clara Luper's act sparked a wave across the nation, creating a nationwide movement of sit-ins among the NAACP Youth Council. Clara Luper was arrested multiple times for her actions, but nevertheless her action to start the sit-in movement during the civil rights era created a memorable and effective movement of nationwide nonviolent protests. The efforts of Luper and the other members of the Youth Council greatly contributed to the dismantling of segregation in Oklahoma.

Along with the efforts of NAACP and NAACP youth, college students in Oklahoma worked to dismantle segregation in higher education throughout the state. Prior to the desegregation of higher education in Oklahoma, Black students were confined only to attending Langston University, which forced black students to pay out-of-state tuition costs regardless of Oklahoma citizenship. However, with the decision of *Spuiel vs. Board of Regents of the University of Oklahoma* Case in 1948, black students were allowed admission into the university of Oklahoma, but were "required to segregate [black] students in the University".

This injustice sparked action among college students at Oklahoma State University and University of Oklahoma to join the fight for racial equality. Because of their close ties to the community, the struggles of the working class and internal issues, their new form of activism known as "Prairie Power" spread across young adults in the midwestern United States.[1] Because of the previous surge of the Oklahoman socialist party in the early 20th century, along with the Okie draft resisters in

WWI, the Oklahoman Prairie Power movement saw similar motives to these movements with the ideas of counterculture and progressivism. This new form of protest encouraged desegregation in higher education, and groups of students who participated in prairie power activism made heavy contributions towards liberalism and leftist ideology in colleges that opened the doors to anti-racist ideas.

After a longwinded nationwide battle for racial justice in the United States, the Civil Rights act of 1964 provided equal protections under the constitution to black Americans, which gave Oklahoman African Americans the opportunity to focus more on legislative change and allow their voices to be heard through black elected officials of Oklahoma, but this did not completely erase prejudice from the south.

The American Indian Movement/Red Power Movement in Oklahoma of the Late 1960's-1970's

With the civil rights era underway, Native Americans began to fight for their freedoms as well. After centuries of improper treatment under the United States constitution, the American Indian movement, or AIM was founded originally in Minneapolis to protest and prevent police racially profiling Native Americans. However, this movement quickly expanded across the United States. As Oklahoma was originally a reserved territory marked for Native reservations following the Indian Removal Act, the state maintained a large population of Native peoples. Although the first few years of the American Indian movement were not marked with any significant events in Oklahoma, the year 1972 saw the movement's first point of significant progress in the state. On September 12th, 1972

forty to fifty Native Americans from the American Indian Movement overtook the office of Indian Education Director Overton James in demand that he resign from his current Indian Education Director position, along with his position of the governor of the Chickasaw nation. Along with the demands of resignation, the American Indian Movement experienced collective outrage in the way that funds based on the Johnson-O'Malley Act of 1934 were ultimately detrimental to the education of Native students.

Carter Camp, the Kansas and Oklahoma American Indian Movement coordinator demanded action from the nation Bureau of Indian Affairs (BIA), and ultimately freeze any funds from the Johnson-O'Malley act until the BIA negotiated and agreed to send representatives to the office under occupation. With the negotiation between American Indian movement leaders and Bureau of Indian Affairs, the AIM deemed themselves fully successful as the BIA froze all funds from the Johnson-O'Malley act for the fiscal year along with allowing for more native input on how finances for Indian Education is spent. This success for the AIM gained them nationwide notoriety, and provided a nationwide success for native input into politics.

Shortly after this AIM success, the movement had another overtaking in Lawton, Oklahoma. After the students of Fort Hill Indian School (FHIS) called for the aid of the American Indian movement due to a lack of consideration or responsiveness from faculty and administrative officials at the school because of an inconsistency in the schools curfew policy. In response to this, the American Indian movement overtook the Fort Hill Indian School Administration building, staying there in protest

for the students for over twenty four hours before police officers came to the scene and arrested four individuals for trespassing. Despite the success of their first takeover of Overton James's office, this display at the Fort Hill Indian School unfortunately displayed inconsistencies and a lack of devotion to its own personal cause, but instead acted as a response group for individual instances of prejudice against Native Americans.

A derivative of the American Indian movement, the civil rights era and native activism also saw light to the National Indian Youth Council (NIYC). This youth movement was founded by co-founded Clyde Warrior, a Native American Oklahoman. Warrior's use of rhetoric was essential to building his cause, which was ultimately successful. The movement held extremely similar values to the American Indian Movement, and was responsible for sparking over two decades of grassroots activism among native Americans in the United States, and ultimately became the second oldest recognized Native organization in the United States. The NIYC aligned itself closely to the The success of the organization is still nationally recognized, as the National Indian Youth Council is a national organization in the present day.

Along with this, an Oklahoman derivative of the National Indian youth council was the Choctaw Youth Movement. With the realization that the Choctaw tribe was going to be dissolved under the national government, specifically under "Belvin's Law", Charles E. Brown began to organize other urban choctaw youth and began rallying, moving from door to door to raise awareness for this bill and demanding the bills termination. This movement emphasized that members of the Choctaw

nation should take pride in their ancestry, and fight to keep their legacy alive. The Choctaw Youth movement gained quick recognition from the Oklahomans for Indian Opportunity organization, along with the support and recognition from Red Power and the American Indian Movement. The movement focused also on creating newsletters for the "average choctaw", which further raised awareness in their campaign.

These news letters, actively criticized and questioned Principal Chief Harry J. W. Belvin, the man who initially proposed the bill to terminate the Choctaw nation in the first place. Along with this the newsletters aimed to create a collective realization between the Choctaw people regarding the lack of control they have over legislation that is pinned against them, along with the control of their native lands. Soon enough, these Choctaw newsletters were not being spread only to Oklahoman Choctaws, but nationwide. The rapid-fire support and spread this movement saw great success for the movement, giving them the ability to effectively lobby congress, write to Oklahoma Legislative officials and the Bureau of Indian Affairs, and spread a nationwide petition expressing the grievances of the Choctaw people against this bill. Despite the collective efforts of the Choctaw youth movement, its is still heavily debated on whether the collective efforts of the group lobbied the success of the bills termination, or it was the cause of personal fear of attack and removal from office from Belvin.

After World War II

The term "Okie" in recent years has taken on a new meaning in the past few decades, with many Oklahomans (both former and present) wearing the label as a badge of honor (as a symbol of

the Okie survivor attitude). Others (mostly alive during the Dust Bowl era) still see the term negatively because they see the "Okie" migrants as quitters and transplants to the West Coast.

Major trends in Oklahoma history after the Depression-era included the rise again of tribal sovereignty (including the issuance of tribal automobile license plates, and the opening of tribal smoke shops, casinos, grocery stores, and other commercial enterprises), the rapid growth of suburban Oklahoma City and Tulsa, the drop in population in Western Oklahoma, the oil boom of the 1980s and the oil bust of the 1990s.

In recent years, major efforts have been made by state and local leaders to revive Oklahoma's small towns and population centers, which had seen a major decline following the oil bust. But Oklahoma City and Tulsa remain economically active in their effort to diversify as the state focuses more on medical research, health, finance, and manufacturing.

Aeronautical Economic Focus

Excluding governmental and education sectors, the largest single employers in the state tend to be in the aeronautical sector. The building of Tinker Air Force Base and the FAA's Mike Monroney Aeronautical Center in Oklahoma City, and American Airlines Engineering center, Maintenance Facility and Data Center in Tulsa provide the state with a comparative advantage in the Aeronautical sector of the economy. AAR Corporation has operations in both Oklahoma City and Tulsa,

and The Boeing Company and Pratt & Whitney are building a regional presence next to Tinker AFB.

The state has a significant military (Air Force) presence with bases in Enid, Oklahoma (Vance Air Force Base) and Altus, Oklahoma (Altus Air Force Base), in addition to Tinker AFB in Oklahoma City. Additionally, Tinker houses the Navy's Strategic Communications Wing One.

For Aeronautical education and training, Tulsa hosts the Spartan College of Aeronautics and Technology that offers training in aviation and aircraft maintenance. Oklahoma University and Oklahoma State University both offer aviation programs. The FAA's Academy is responsible for the training Air Traffic Controllers.

Oil and Gas Economic Focus

The oil and natural gas industry has historically been a dominant factor in the state's economy, second only to agriculture.

The Tulsa Metropolitan Area has been home to more traditional oil companies such as ONEOK, Williams Companies, Helmerich & Payne, Magellan Midstream Partners with significant presence from ConocoPhillips. Oklahoma City is home to energy companies such as Devon Energy, Chesapeake Energy, OGE Energy, SandRidge Energy, Continental Resources. Duncan, Oklahoma is the birthplace of Halliburton Corporation. Significant research and education is done in the field by the Oklahoma University's Mewbourne College of Earth and Energy.

HVAC Manufacturing Economic Focus

The state has a surprisingly large concentration of companies that manufacture products that heat and cool buildings (HVAC). Among the companies in Tulsa are AAON (the former John Zink Company). In Oklahoma City are International Environmental,

Climate Master, and Climate Control (subsidiaries of LSB Industries). Also, Governair and Temptrol (subsidiaries of CES Group) and York Unitary division of Johnson Controls have a major presence in the Oklahoma City metro. Also, Oklahoma State University has a major research effort in developing the Geothermal heat pump, and is headquarters for the International Ground Source Heat Pump Association. Oklahoma State University–Okmulgee is known in the industry for its Air Conditioning Technology programs.

Oklahoma City Bombing

On April 19, 1995, in the Oklahoma City bombing, Gulf War veteran Timothy McVeigh bombed the Alfred P. Murrah Federal Building, killing 168 people, including 19 children. Timothy McVeigh and Terry Nichols were the convicted perpetrators of the attack, although many believe others were involved. Timothy McVeigh was later sentenced to death by lethal injection, while his partner, Terry Nichols, who was convicted of 161 counts of first-degree murder received life in prison without the possibility of parole. It is said that McVeigh stayed at the El Siesta motel, a small town motel on US 64 in Vian, Oklahoma.

Chapter 5

Cordilleran and Laurentide Ice Sheets

Cordilleran ice sheet

The **Cordilleran ice sheet** was a major ice sheet that periodically covered large parts of North America during glacial periods over the last ~2.6 million years. This included the following areas:

- Western Montana
- The Idaho Panhandle
- Northern Washington state down to about Olympia and Spokane
- All of British Columbia
- The southwestern third or so of Yukon Territory
- All of the Alaska Panhandle
- South Central Alaska
- The Alaska Peninsula
- Almost all of the continental shelf north of the Strait of Juan de Fuca

The ice sheet covered up to 2.5 million square kilometres at the Last Glacial Maximum and probably more than that in some previous periods, when it may have extended into the northeast extremity of Oregon and the Salmon River Mountains in Idaho. It is probable, though, that its northern margin also migrated south due to the influence of starvation caused by

very low levels of precipitation. At its eastern end the Cordilleran ice sheet merged with the Laurentide Ice Sheet at the Continental Divide, forming an area of ice that contained one and a half times as much water as the Antarctic ice sheet does today. At its western end it is currently understood that several small glacial refugia existed during the last glacial maximum below present sea level in the now-submerged Hecate Strait and on the Brooks Peninsula in northern Vancouver Island.

However, evidence of ice-free refugia above present sea level north of the Olympic Peninsula has been refuted by genetic and geological studies since the middle 1990s. The ice sheet faded north of the Alaska Range because the climate was too dry to form glaciers.

Unlike the Laurentide Ice Sheet, which is believed to have taken as much as eleven thousand years to fully melt, it is believed the Cordilleran ice sheet, except for areas that remain glaciated today, melted very quickly, probably in four thousand years or less.

This rapid melting caused such floods as the overflow of Lake Missoula and shaped the topography of the extremely fertile Inland Empire of Eastern Washington.

Sea levels during glaciation

Because of the weight of the ice, the mainland of northwest North America was so depressed that sea levels at the Last Glacial Maximum were over a hundred metres higher than they are today (measured by the level of bedrock).

However, on the western edge at the Haida Gwaii (formerly known as the Queen Charlotte Islands), the lower thickness of the ice sheet meant that sea levels were as much as 170 metres lower than they are today, forming a lake in the deepest parts of the strait. This was because the much greater thickness of the center of the ice sheet served to push upwards areas at the edge of the continental shelf in a glacial forebulge. The effect of this during deglaciation was that sea levels on the edge of the ice sheet, which naturally deglaciated first, initially rose due to an increase in the volume of water, but later fell due to rebound after deglaciation. Some underwater features along the Pacific Northwest were exposed because of the lower sea levels, including Bowie Seamount west of Haida Gwaii which has been interpreted as an active volcanic island throughout the last ice age.

These effects are important because they have been used to explain how migrants to North America from Beringia were able to travel southward during the deglaciation process due purely to the exposure of submerged land between the mainland and numerous continental islands. They are also important for understanding the direction evolution has taken since the ice retreated.

Even today, the region is notable for its rapid changes in sea level, which, however, have little effect on most of the coast due to the numerous fjords.

Laurentide Ice Sheet

The **Laurentide Ice Sheet** was a massive sheet of ice that covered millions of square miles, including most of Canada and

a large portion of the Northern United States, multiple times during the Quaternary glacial epochs, from 2.588 ± 0.005 million years ago to the present.

The last advance covered most of northern North America between c. 95,000 and c. 20,000 years before the present day and, among other geomorphological effects, gouged out the five Great Lakes and the hosts of smaller lakes of the Canadian Shield. These lakes extend from the eastern Northwest Territories, through most of northern Canada, and the upper Midwestern United States (Minnesota, Wisconsin, and Michigan) to the Finger Lakes, through Lake Champlain and Lake George areas of New York, across the northern Appalachians into and through all of New England and Nova Scotia.

At times, the ice sheet's southern margin included the present-day sites of coastal towns of the Northeastern United States, and cities such as Boston and New York City and Great Lakes coastal cities and towns as far south as Chicago and St. Louis, Missouri, and then followed the present course of the Missouri River up to the northern slopes of the Cypress Hills, beyond which it merged with the Cordilleran Ice Sheet. The ice coverage extended approximately as far south as 38 degrees latitude mid-continent.

Description

This ice sheet was the primary feature of the Pleistocene epoch in North America, commonly referred to as the ice age. It was up to 2 mi (3.2 km) thick in Nunavik, Quebec, Canada, but much thinner at its edges, where nunataks were common in

hilly areas. It created much of the surface geology of southern Canada and the northern United States, leaving behind glacially scoured valleys, moraines, eskers and glacial till. It also caused many changes to the shape, size, and drainage of the Great Lakes. As but one of many examples, near the end of the last ice age, Lake Iroquois extended well beyond the boundaries of present-day Lake Ontario, and drained down the Hudson River into the Atlantic Ocean.

Its cycles of growth and melting were a decisive influence on global climate during its existence. This is because it served to divert the jet stream southward, which would otherwise flow from the relatively warm Pacific Ocean through Montana and Minnesota.

That gave the Southwestern United States, otherwise a desert, abundant rainfall during ice ages, in extreme contrast to most other parts of the world which became exceedingly dry, though the effect of ice sheets in Europe had an analogous effect on the rainfall in Afghanistan, parts of Iran, possibly western Pakistan in winter, as well as North Africa.

Its melting also caused major disruptions to the global climate cycle, because the huge influx of low-salinity water into the Arctic Ocean via the Mackenzie River is believed to have disrupted the formation of North Atlantic Deep Water, the very saline, cold, deep water that flows from the Greenland Sea.

That interrupted the thermohaline circulation, creating the brief Younger Dryas cold epoch and a temporary re-advance of the ice sheet, which did not retreat from Nunavik until 6,500 years ago.

During the Pre-Illinoian Stage, the Laurentide Ice Sheet extended as far south as the Missouri and Ohio River valleys.

The ultimate collapse of the Laurentide Ice Sheet is also suspected to have influenced European agriculture indirectly through the rise of global sea levels.

Canada's oldest ice is a 20,000-year-old remnant of the Laurentide Ice Sheet called the Barnes Ice Cap, on central Baffin Island.

Ice centers

During the Late Pleistocene, the Laurentide ice sheet reached from the Rocky Mountains eastward through the Great Lakes, into New England, covering nearly all of Canada east of the Rocky Mountains.

Three major ice centers formed in North America: the Labrador, Keewatin, and Cordilleran. The Cordilleran covered the region from the Pacific Ocean to the eastern front of the Rocky Mountains and the Labrador and Keewatin fields are referred to as the Laurentide Ice Sheet. Central North America has evidence of the numerous lobes and sublobes.

The Keewatin covered the western interior plains of North America from the Mackenzie River to the Missouri River and the upper reaches of the Mississippi River. The Labrador covered spread over eastern Canada and the northeastern part of the United States abutting the Keewatin lobe in the western Great Lakes and Mississippi valley.

Cordilleran ice flow

The Cordilleran ice sheet covered up to 2,500,000 square kilometres (970,000 sq mi) at the Last Glacial Maximum. The eastern edge abutted the Laurentide ice sheet. The sheet was anchored in the Coast Mountains of British Columbia and Alberta, south into the Cascade Range of Washington. That is one and a half times the water held in the Antarctic. Anchored in the mountain backbone of the west coast, the ice sheet dissipated north of the Alaska Range where the air was too dry to form glaciers. It is believed that the Cordilleran ice melted rapidly, in less than 4000 years. The water created numerous Proglacial lakes along the margins such as Lake Missoula, often leading to catastrophic floods as with the Missoula Floods. Much of the topography of Eastern Washington and northern Montana and North Dakota was affected.

Keewatin ice flow

The Keewatin ice sheet has had four or five primary lobes identified ice divides extending from a dome over west-central Keewatin. Two of the lobes abut the adjacent Labrador and Baffin ice sheets. The primary lobes flow (1) towards Manitoba and Saskatchewan; (2) toward Hudson Bay; (3) towards the Gulf of Boothia, and (4) towards the Beaufort Sea.

Labrador ice flow

The Labrador ice sheet flowed across all of Maine and into the Gulf of St. Lawrence, completely covering the Maritime Provinces. The Appalachian Ice Complex, flowed from the Gaspé Peninsula over New Brunswick, the Magdalen Shelf, and

Nova Scotia. The Labrador flow extended across the mouth of the St. Lawrence River, reaching the Gaspé Peninsula and across Chaleur Bay. From the Escuminac center on the Magdalen Shelf, flowed onto the Acadian Peninsula of New Brunswick and southeastward, onto the Gaspé, burying the western end of Prince Edward Island and reached the head of Bay of Fundy. From the Gaspereau center, on the divide crossing New Brunswick flowed into the Bay of Fundy and Chaleur Bay.

In New York, the ice that covered Manhattan was about 2,000 feet high before it began to melt in about 16,000 BC. The ice in the area disappeared around 10,000 BC. The ground in the New York area has since risen by more than 150 ft because of the removal of the enormous weight of the melted ice.

Baffin ice flow

The Baffin ice sheet was circular and centered over the Foxe Basin. A major divide across the basin, created a westward flow across the Melville Peninsula, from an eastward flow over Baffin Island and Southampton Island. Across southern Baffin Island, two divides created four additional lobes. The Penny Ice Divide split the Cumberland Peninsula, where Pangnirtung created flow toward Home Bay on the north and Cumberland Sound on the south. The Amadjuak Ice Divide on the Hall Peninsula, where Iqaluit sits created a north flow into Cumberland Sound and a south flow into the Hudson Strait. A secondary Hall Ice Divide formed a link to a local ice cap on the Hall Peninsula. The current ice caps on Baffin Island are thought to be a remnant from this time period, but it was not a part of the Baffin ice flow, but an autonomous flow.

Chapter 6

Woodland Period of Pre-Columbian

In the classification of archaeological cultures of North America, the **Woodland period** of North American pre-Columbian cultures spanned a period from roughly 1000 BCE to European contact in the eastern part of North America, with some archaeologists distinguishing the Mississippian period, from 1000 CE to European contact as a separate period. The term "Woodland Period" was introduced in the 1930s as a generic term for prehistoric sites falling between the Archaic hunter-gatherers and the agriculturalist Mississippian cultures. The Eastern Woodlands cultural region covers what is now eastern Canada south of the Subarctic region, the Eastern United States, along to the Gulf of Mexico.

This period is variously considered a developmental stage, a time period, a suite of technological adaptations or "traits", and a "family tree" of cultures related to earlier Archaic cultures. It can be characterized as a chronological and cultural manifestation without any massive changes in a short time but instead having a continuous development in stone and bone tools, leather crafting, textile manufacture, cultivation, and shelter construction. Many Woodland peoples used spears and atlatls until the end of the period, when they were replaced by bows and arrows; however, Southeastern Woodland peoples also used blowguns.

The most cited technological distinction of this period was the widespread use of pottery (although pottery manufacture had

arisen during the Archaic period in some places), and the diversification of pottery forms, decorations, and manufacturing practices. The increasing use of horticulture and the development of the Eastern Agricultural Complex, consisting of weedy seed plants as well as gourd cultivation, also meant that groups became less mobile over time and, in some times and places, people lived in permanently occupied villages and cities. Intensive agriculture characterizes the Mississippian period from c. 1000–1400 CE and may have continued up to European contact, around 500 years ago.

Early Woodland period (1000–200 BCE)

The Early Woodland period continued many trends begun during the Late and Terminal Archaic periods, including extensive mound-building, regional distinctive burial complexes, the trade of exotic goods across a large area of North America as part of interaction spheres, the reliance on both wild and domesticated plant foods, and a mobile subsistence strategy in which small groups took advantage of seasonally available resources such as nuts, fish, shellfish, and wild plants. Pottery, which had been manufactured during the Archaic period in limited amounts, was now widespread across the Eastern Interior, the Southeast, and the Northeast. The Far Northeast, the Sub-Arctic, and the Northwest/Plains regions widely adopted pottery somewhat later, about 200 BCE.

Interaction

The Adena culture built conical mounds in which single- or multiple-event burials, often cremated, were interred along with rich grave goods including copper bracelets, beads, and

gorgets, art objects made from mica, novaculite, hematite, banded slate, and other kinds of stone, shell beads and cups, and leaf-shaped "cache blades". This culture is believed to have been core to the Meadowood Interaction Sphere, in which cultures in the Great Lakes region, the St. Lawrence region, the Far Northeast, and the Atlantic region interacted. The large area of interaction is indicated by the presence of Adena-style mounds, the presence of exotic goods from other parts of the interaction spheres, and the participation in the "Early Woodland Burial Complex" defined by William Ritchie

Pottery

Pottery was widely manufactured and sometimes traded, particularly in the Eastern Interior region. Clay for pottery was typically tempered (mixed with non-clay additives) with grit (crushed rock) or limestone. Pots were usually made in a conoidal or conical jar with rounded shoulders, slightly constricted necks, and flaring rims. Pottery was most often decorated with a variety of linear or paddle stamps that created "dentate" (tooth-like) impressions, wavy line impressions, checked surfaces, or fabric-impressed surfaces, but some pots were incised with herringbone and other geometric patterns or, more rarely, with pictorial imagery such as faces. Pots were coiled and paddled entirely by hand without the use of fast rotation such as a pottery wheel. Some were slipped or brushed with red ochre.

Pottery, agriculture, and permanent settlements have often been thought of the three defining characteristics of the Woodland period. However, it has become evident that, in some areas of North America, prehistoric cultural groups with a

clearly Archaic cultural assemblage were making pottery without any evidence of the cultivation of domesticated crops. In fact, it appears that hunting and gathering continued as the basic subsistence economy and that subsistence horticulture/agriculture did not occur in much of the Southeast for a couple of thousand years after the introduction of pottery, and in parts of the Northeast, horticulture was never practiced. This research indicated that a fiber-tempered horizon of ceramics greatly predates 1000 BCE, first appearing about 2500 BCE in parts of Florida with the Orange culture and in Georgia with the Stallings culture. Nevertheless, these early sites were typical Archaic settlements, differing only in the use of basic ceramic technology. As such, researchers are now redefining the period to begin with not only pottery, but the appearance of permanent settlements, elaborate burial practices, intensive collection and/or horticulture of starchy seed plants (see Eastern Agricultural Complex), differentiation in social organization, and specialized activities, among other factors. Most of these are evident in the Southeastern Woodlands by 1000 BCE.

In some areas, like South Carolina and coastal Georgia, Deptford culture pottery manufacture ceased after c. 700 CE.

Subsistence strategies

In coastal regions, many settlements were near the coast, often near salt marshes, which were habitats rich in food resources. People tended to settle along rivers and lakes in both coastal and interior regions for maximum access to food resources. Nuts were processed in large amounts, including hickory and acorns, and many wild berries, including palm berries,

blueberries, raspberries, and strawberries, were eaten, as well as wild grapes and persimmon. Most groups relied heavily on white-tailed deer, but a variety of other small and large mammals were hunted also, including beaver, raccoon, and bear. Shellfish formed an important part of the diet, attested to by numerous shell middens along the coast and interior rivers.

Coastal peoples practiced seasonal mobility, moving to the coast during the summer to take advantage of numerous marine resources such as sea mammals and shellfish, then moved to interior locations during the winter where access to deer, bear, and anadromous fish such as salmon could see them through the winter.

Seasonal foraging also characterized the strategies of many interior populations, with groups moving strategically among dense resource areas.

Recently evidence has accumulated a greater reliance on woodland peoples on cultivation in this period, at least in some localities, than has historically been recognized.

This is especially true for the middle woodland period and perhaps beyond. C. Margaret Scarry states "in the Woodland periods, people diversified their use of plant foods ... [they] increased their consumption of starchy foods.

They did so, however, by cultivating starchy seeds rather than by gathering more acorns." Smith and Yarnell refer to an "indigenous crop complex" as early as 3800 B.P. in parts of the region.

Middle Woodland period

(200 BCE – 500 CE)

The beginning of the Middle Woodland saw a shift of settlement to the Interior. As the Woodland period progressed, local and inter-regional trade of exotic materials greatly increased to the point where a trade network covered most of the Eastern Woodlands.

Throughout the Southeast and north of the Ohio River, burial mounds of important people were very elaborate and contained a variety of mortuary gifts, many of which were not local. Among the traded materials were copper from the Lake Superior deposits; silver from Lake Superior and especially Ontario; galena from Missouri and Illinois; mica from the southern Appalachians; chert from various places including Ohio, Indiana, and Illinois; pipestone from Ohio and Illinois; alligator teeth from the lower Mississippi Valley eastward to Florida; marine shells, especially whelks, from the south Atlantic and Gulf coasts; Knife River chalcedony from North Dakota; and obsidian from Yellowstone in Wyoming.

The most archaeologically certifiable sites of burial during this time were in Illinois and Ohio. These have come to be known as the Hopewell tradition. Due to the similarity of earthworks and burial goods, researchers assume a common body of religious practice and cultural interaction existed throughout the entire region (referred to as the "Hopewellian Interaction Sphere"). Such similarities could also be the result of reciprocal trade, obligations, or both between local clans that controlled specific territories. Access to food or resources outside a clan's

territory would be made possible through formal agreements with neighbors. Clan heads would be buried along with goods received from their trading partners to symbolize the relationships they had established.

Under this scenario, permanent settlements would be likely to develop, leading to increased agricultural production and a population increase.

Ceramics during this time were thinner and better quality than earlier times. Examples show pottery also was more decorated than Early Woodland. One style was the Trempealeau phase, which could have been seen by the Hopewell in Indiana. This type included a round body, and lines of decoration with cross-etching on rim.

The Havana style found in Illinois had a decorated neck. One of the major tools unique to this era was Snyders Points. These were quite large and corner-notched. They were made by soft-hammering percussion, and finished by pressure flaking.

Although many of the Middle Woodland cultures are called "Hopewellian", and groups shared ceremonial practices, archeologists have identified the development of distinctly separate cultures during the Middle Woodland period. Examples include the Armstrong culture, Copena culture, Crab Orchard culture, Fourche Maline culture, the Goodall Focus, the Havana Hopewell culture, the Kansas City Hopewell, the Marksville culture, and the Swift Creek culture.

The Center for American Archeology specializes in Middle Woodland culture.

Late Woodland period (500–1000 CE)

The late Woodland period was a time of apparent population dispersal, although populations do not appear to have decreased. In most areas construction of burial mounds decreased markedly, as did long-distance trade in exotic materials. At the same time, bow and arrow technology gradually overtook the use of the spear and atlatl. Agricultural production of the "Three Sisters" (maize, beans, and squash) was introduced. While full-scale intensive agriculture did not begin until the following Mississippian period, the beginning of serious cultivation greatly supplemented the traditional gathering of plants.

Late Woodland settlements became more numerous, but the size of each one (with exceptions) was smaller than their Middle Woodland counterparts.

The reasons for this are unknown, but it has been theorized that populations increased so much that trade alone could no longer support the communities and some clans resorted to raiding others for resources. Alternatively, the efficiency of bows and arrows in hunting may have decimated the large game animals, forcing the tribes to break apart into smaller clans to better use local resources, thus limiting the trade potential of each group. A third possibility is a colder climate may have affected food yields, possibly affected by Northern Hemisphere extreme weather events of 535–536, also limiting trade possibilities. Lastly, it may be that agricultural technology became sophisticated enough that crop variation between clans lessened, thereby decreasing the need for trade.

As communities became more isolated, they began to develop in their own unique ways, giving rise to small-scale cultures that were distinctive to their regional areas. Examples include the Baytown, Troyville and Coles Creek cultures of Louisiana; the Alachua and Weeden Island cultures of Florida; and the Plum Bayou culture of Arkansas and Missouri.

Although the 1000 CE ending of the Late Woodland period is traditional, in practice many regions of the Eastern Woodlands adopted the full Mississippian culture much later than that. Some groups in the north and northeast of the current United States, such as the Iroquois, retained a way of life that was technologically identical to the Late Woodland until the arrival of Europeans.

Despite the widespread adoption of the bow and arrow during this time, the peoples of a few areas appear never to have made the change. During Hernando de Soto's travels through the Southeastern Woodlands around 1543, for instance, his expedition noted the groups living at the mouth of the Mississippi river who still preferentially used the spear.

Pre-Columbian era

In the history of the Americas, the **pre-Columbian era** spans from the original settlement of North and South America in the Upper Paleolithic period through European colonization, which began with Christopher Columbus's voyage of 1492. Usually the era covers the history of indigenous American cultures until significant influence by Europeans. This may have occurred decades or even centuries after Columbus for certain cultures.

Many pre-Columbian civilizations were marked by permanent settlements, cities, agriculture, civic and monumental architecture, major earthworks, and complex societal hierarchies. Some of these civilizations had long faded by the time of the first permanent European colonies (c. late 16th–early 17th centuries), and are known only through archaeological investigations and oral history. Other civilizations were contemporary with the colonial period and were described in European historical accounts of the time. A few, such as the Maya civilization, had their own written records. Because many Christian Europeans of the time viewed such texts as pagan, men like Diego de Landa burned them, even while seeking to preserve native histories. Only a few hidden documents have survived in their original languages, while others were transcribed or dictated into Spanish, giving modern historians glimpses of ancient culture and knowledge.

Many indigenous peoples in the Americas continue traditional practices while evolving and adapting to the modern world.

The alternative terms **precontact**, **precolonial**, or **prehistoric Americas** are also used; in Hispanic America, the usual term is **pre-Hispanic**; in Brazil, the term used is **pre-Cabraline**.

Historiography

Before the development of archaeology in the 19th century, historians of the pre-Columbian period mainly interpreted the records of the European conquerors and the accounts of early European travelers and antiquaries. It was not until the nineteenth century that the work of people such as John Lloyd Stephens, Eduard Seler and Alfred P. Maudslay, and of

institutions such as the Peabody Museum of Archaeology and Ethnology of Harvard University, led to the reconsideration and criticism of the early European sources. Now, the scholarly study of pre-Columbian cultures is most often based on scientific and multidisciplinary methodologies.

Genetics

The haplogroup most commonly associated with Indigenous Amerindian genetics is Haplogroup Q1a3a (Y-DNA). Y-DNA, like mtDNA, differs from other nuclear chromosomes in that the majority of the Y chromosome is unique and does not recombine during meiosis. This has the effect that the historical pattern of mutations can easily be studied. The pattern indicates Indigenous Amerindians experienced two very distinctive genetic episodes; first with the initial-peopling of the Americas, and secondly with European colonization of the Americas.

The former is the determinant factor for the number of gene lineages and founding haplotypes present in today's Indigenous Amerindian populations.

Human settlement of the Americas occurred in stages from the Bering sea coast line, with an initial 20,000-year layover on Beringia for the founding population. The micro-satellite diversity and distributions of the Y lineage specific to South America indicates that certain Amerindian populations have been isolated since the initial colonization of the region. The Na-Dené, Inuit and Indigenous Alaskan populations exhibit haplogroup Q-M242 (Y-DNA) mutations, however are distinct from other indigenous Amerindians with various mtDNA

mutations. This suggests that the earliest migrants into the northern extremes of North America and Greenland derived from later populations.

Settlement of the Americas

Asian nomadic Paleo-Indians are thought to have entered the Americas via the Bering Land Bridge (Beringia), now the Bering Strait, and possibly along the coast. Genetic evidence found in Amerindians' maternally inherited mitochondrial DNA (mtDNA) supports the theory of multiple genetic populations migrating from Asia. After crossing the land bridge, they moved southward along the Pacific coast and through an interior ice-free corridor. Over the course of millennia, Paleo-Indians spread throughout the rest of North and South America.

Exactly when the first people migrated into the Americas is the subject of much debate. One of the earliest identifiable cultures was the Clovis culture, with sites dating from some 13,000 years ago. However, older sites dating back to 20,000 years ago have been claimed. Some genetic studies estimate the colonization of the Americas dates from between 40,000 and 13,000 years ago.

The chronology of migration models is currently divided into two general approaches. The first is the *short chronology theory* with the first movement beyond Alaska into the Americas occurring no earlier than 14,000–17,000 years ago, followed by successive waves of immigrants. The second belief is the *long chronology theory*, which proposes that the first group of people entered the hemisphere at a much earlier date, possibly 50,000–40,000 years ago or earlier.

Artifacts have been found in both North and South America which have been dated to 14,000 years ago, and accordingly humans have been proposed to have reached Cape Horn at the southern tip of South America by this time. In that case, the Inuit would have arrived separately and at a much later date, probably no more than 2,000 years ago, moving across the ice from Siberia into Alaska.

North America

Archaic period

The North American climate was unstable as the ice age receded. It finally stabilized by about 10,000 years ago; climatic conditions were then very similar to today's. Within this time frame, roughly pertaining to the Archaic Period, numerous archaeological cultures have been identified.

The unstable climate led to widespread migration, with early Paleo-Indians soon spreading throughout the Americas, diversifying into many hundreds of culturally distinct tribes. The Paleo-Indians were hunter-gatherers, likely characterized by small, mobile bands consisting of approximately 20 to 50 members of an extended family. These groups moved from place to place as preferred resources were depleted and new supplies were sought. During much of the Paleo-Indian period, bands are thought to have subsisted primarily through hunting now-extinct giant land animals such as mastodon and ancient bison. Paleo-Indian groups carried a variety of tools, including distinctive projectile points and knives, as well as less distinctive butchering and hide-scraping implements.

The vastness of the North American continent, and the variety of its climates, ecology, vegetation, fauna, and landforms, led ancient peoples to coalesce into many distinct linguistic and cultural groups. This is reflected in the oral histories of the indigenous peoples, described by a wide range of traditional creation stories which often say that a given people have been living in a certain territory since the creation of the world.

Over the course of thousands of years, paleo-Indian people domesticated, bred and cultivated a number of plant species, including crops which now constitute 50–60% of worldwide agriculture. In general, Arctic, Subarctic, and coastal peoples continued to live as hunters and gatherers, while agriculture was adopted in more temperate and sheltered regions, permitting a dramatic rise in population.

Middle Archaic period

After the migration or migrations, it was several thousand years before the first complex societies arose, the earliest emerging about seven to eight thousand years ago. As early as 6500 BCE, people in the Lower Mississippi Valley at the Monte Sano site were building complex earthwork mounds, probably for religious purposes. This is the earliest dated of numerous mound complexes found in present-day Louisiana, Mississippi and Florida. Since the late twentieth century, archeologists have explored and dated these sites. They have found that they were built by hunter-gatherer societies, whose people occupied the sites on a seasonal basis, and who had not yet developed ceramics. Watson Brake, a large complex of eleven platform mounds, was constructed beginning 3400 BCE and added to over 500 years. This has changed earlier assumptions that

complex construction arose only after societies had adopted agriculture, become sedentary, with stratified hierarchy and usually ceramics. These ancient people had organized to build complex mound projects under a different social structure.

Late Archaic period

Until the accurate dating of Watson Brake and similar sites, the oldest mound complex was thought to be Poverty Point, also located in the Lower Mississippi Valley. Built about 1500 BCE, it is the centerpiece of a culture extending over 100 sites on both sides of the Mississippi. The Poverty Point site has earthworks in the form of six concentric half-circles, divided by radial aisles, together with some mounds. The entire complex is nearly a mile across.

Mound building was continued by succeeding cultures, who built numerous sites in the middle Mississippi and Ohio River valleys as well, adding effigy mounds, conical and ridge mounds and other shapes.

Woodland period

The Woodland period of North American pre-Columbian cultures lasted from roughly 1000 BCE to 1000 CE. The term was coined in the 1930s and refers to prehistoric sites between the Archaic period and the Mississippian cultures. The Adena culture and the ensuing Hopewell tradition during this period built monumental earthwork architecture and established continent-spanning trade and exchange networks.

In the Great Plains, this period is called the Woodland period.

This period is considered a developmental stage without any massive changes in a short period, but instead having a continuous development in stone and bone tools, leatherworking, textile manufacture, tool production, cultivation, and shelter construction. Some Woodland peoples continued to use spears and atlatls until the end of the period, when they were replaced by bows and arrows.

Mississippian culture

The Mississippian culture was spread across the Southeast and Midwest from the Atlantic coast to the edge of the plains, from the Gulf of Mexico to the Upper Midwest, although most intensively in the area along the Mississippi River and Ohio River. One of the distinguishing features of this culture was the construction of complexes of large earthen mounds and grand plazas, continuing the moundbuilding traditions of earlier cultures. They grew maize and other crops intensively, participated in an extensive trade network and had a complex stratified society.

The Mississippians first appeared around 1000 CE, following and developing out of the less agriculturally intensive and less centralized Woodland period. The largest urban site of these people, Cahokia—located near modern East St. Louis, Illinois—may have reached a population of over 20,000. Other chiefdoms were constructed throughout the Southeast, and its trade networks reached to the Great Lakes and the Gulf of Mexico. At its peak, between the 12th and 13th centuries, Cahokia was the most populous city in North America. (Larger cities did exist in Mesoamerica and South America.) Monk's Mound, the major ceremonial center of Cahokia, remains the

largest earthen construction of the prehistoric Americas. The culture reached its peak in about 1200–1400 CE, and in most places, it seems to have been in decline before the arrival of Europeans.

Many Mississippian peoples were encountered by the expedition of Hernando de Soto in the 1540s, mostly with disastrous results for both sides. Unlike the Spanish expeditions in Mesoamerica, who conquered vast empires with relatively few men, the de Soto expedition wandered the American Southeast for four years, becoming more bedraggled, losing more men and equipment, and eventually arriving in Mexico as a fraction of its original size. The local people fared much worse though, as the fatalities of diseases introduced by the expedition devastated the populations and produced much social disruption. By the time Europeans returned a hundred years later, nearly all of the Mississippian groups had vanished, and vast swaths of their territory were virtually uninhabited.

Historic tribes

When the Europeans arrived, indigenous peoples of North America had a wide range of lifeways from sedentary, agrarian societies to semi-nomadic hunter-gatherer societies. Many formed new tribes or confederations in response to European colonization. These are often classified by cultural regions, loosely based on geography. These can include the following:

- Arctic, including Aleut, Inuit, and Yupik peoples
- Subarctic
- Northeastern Woodlands

- Southeastern Woodlands
- Great Plains
- Great Basin
- Northwest Plateau
- Northwest Coast
- California
- Southwest (Oasisamerica)

Numerous pre-Columbian societies were sedentary, such as the Pueblo peoples, Mandan, Hidatsa and others, and some established large settlements, even cities, such as Cahokia, in what is now Illinois. The Iroquois League of Nations or "People of the Long House" was a politically advanced, democratic society, which is thought by some historians to have influenced the United States Constitution, with the Senate passing a resolution to this effect in 1988. Other historians have contested this interpretation and believe the impact was minimal, or did not exist, pointing to numerous differences between the two systems and the ample precedents for the constitution in European political thought.

Mesoamerica

Mesoamerica is the region extending from central Mexico south to the northwestern border of Costa Rica that gave rise to a group of stratified, culturally related agrarian civilizations spanning an approximately 3,000-year period before the visits to the Caribbean by Christopher Columbus. *Mesoamerican* is the adjective generally used to refer to that group of pre-Columbian cultures. This refers to an environmental area occupied by an assortment of ancient cultures that shared religious beliefs, art, architecture, and technology in the

Americas for more than three thousand years. Between 2000 and 300 BCE, complex cultures began to form in Mesoamerica. Some matured into advanced pre-Columbian Mesoamerican civilizations such as the Olmec, Teotihuacan, Maya, Zapotec, Mixtec, Huastec, Purepecha, Toltec, and Mexica/Aztecs. The Mexica civilization is also known as the Aztec Triple Alliance, since they were three smaller kingdoms loosely united together.

These indigenous civilizations are credited with many inventions: building pyramid-temples, mathematics, astronomy, medicine, writing, highly accurate calendars, fine arts, intensive agriculture, engineering, an abacus calculator, and complex theology. They also invented the wheel, but it was used solely as a toy. In addition, they used native copper, silver and gold for metalworking.

Archaic inscriptions on rocks and rock walls all over northern Mexico (especially in the state of Nuevo León) demonstrate an early propensity for counting. Their number system was base 20 and included zero. These early count-markings were associated with astronomical events and underscore the influence that astronomical activities had upon Mesoamerican people before the arrival of Europeans. Many of the later Mesoamerican civilizations carefully built their cities and ceremonial centers according to specific astronomical events.

The biggest Mesoamerican cities, such as Teotihuacan, Tenochtitlan, and Cholula, were among the largest in the world. These cities grew as centers of commerce, ideas, ceremonies, and theology, and they radiated influence outwards onto neighboring cultures in central Mexico.

While many city-states, kingdoms, and empires competed with one another for power and prestige, Mesoamerica can be said to have had five major civilizations: the Olmec, Teotihuacan, the Toltec, the Mexica and the Maya. These civilizations (with the exception of the politically fragmented Maya) extended their reach across Mesoamerica—and beyond—like no others. They consolidated power and distributed influence in matters of trade, art, politics, technology, and theology. Other regional power players made economic and political alliances with these civilizations over the span of 4,000 years. Many made war with them, but almost all peoples found themselves within one of their spheres of influence.

Regional communications in ancient Mesoamerica have been the subject of considerable research. There is evidence of trade routes starting as far north as the Mexico Central Plateau, and going down to the Pacific coast. These trade routes and cultural contacts then went on as far as Central America. These networks operated with various interruptions from pre-Olmec times and up to the Late Classical Period (600–900 CE).

Olmec civilization

The earliest known civilization in Mesoamerica is the Olmec. This civilization established the cultural blueprint by which all succeeding indigenous civilizations would follow in Mexico. Pre-Olmec civilization began with the production of pottery in abundance, around 2300 BCE in the Grijalva River delta. Between 1600 and 1500 BCE, the Olmec civilization had begun, with the consolidation of power at their capital, a site today known as San Lorenzo Tenochtitlán near the coast in southeast Veracruz. The Olmec influence extended across

Mexico, into Central America, and along the Gulf of Mexico. They transformed many peoples' thinking toward a new way of government, pyramid-temples, writing, astronomy, art, mathematics, economics, and religion. Their achievements paved the way for the Maya civilization and the civilizations in central Mexico.

Teotihuacan civilization

- The decline of the Olmec resulted in a power vacuum in Mexico. Emerging from that vacuum was Teotihuacan, first settled in 300 BCE. By 150 CE, Teotihuacan had risen to become the first true metropolis of what is now called North America. Teotihuacan established a new economic and political order never before seen in Mexico. Its influence stretched across Mexico into Central America, founding new dynasties in the Maya cities of Tikal, Copan, and Kaminaljuyú. Teotihuacan's influence over the Maya civilization cannot be overstated: it transformed political power, artistic depictions, and the nature of economics. Within the city of Teotihuacan was a diverse and cosmopolitan population. Most of the regional ethnicities of Mexico were represented in the city, such as Zapotecs from the Oaxaca region. They lived in apartment communities where they worked their trades and contributed to the city's economic and cultural prowess. Teotihuacan's economic pull impacted areas in northern Mexico as well. It was a city whose monumental architecture reflected a monumental new era in Mexican civilization, declining in political

power about 650 CE—but lasting in cultural influence for the better part of a millennium, to around 950 CE.

Tarascan/Purepecha civilization

Initially, the lands that would someday comprise the lands of the powerful Tarascan Empire were inhabited by several independent communities. Around 1300, however, the first Cazonci, Tariacuri, united these communities and built them into one of the most advanced civilizations in Mesoamerica. Their capital at Tzintzuntzan was just one of the many cities—there were ninety more under its control. The Tarascan Empire was among the largest in Central America, so it is no surprise that they routinely came into conflict with the neighboring Aztec Empire.

Out of all the civilizations in its area, the Tarascan Empire was the most prominent in metallurgy, harnessing copper, silver, and gold to create items such as tools, decorations, and even weapons and armor. Bronze was also used. The great victories over the Aztecs by the Tarascans cannot be understated. Nearly every war they fought in resulted in a Tarascan victory. Because the Tarascan Empire had little links to the former Toltec Empire, they were also quite independent in culture from their neighbors. The Aztecs, Tlaxcaltec, Olmec, Mixtec, Maya, and others were very similar to each other, however. This is because they were all directly preceded by the Toltecs, and they therefore shared almost identical cultures. The Tarascans, however, possessed a unique religion, as well as other things.

Maya civilization

Contemporary with Teotihuacan's greatness was that of the Maya civilization. The period between 250 CE and 650 CE was a time of intense flourishing of Maya civilized accomplishments. While the many Maya city-states never achieved political unity on the order of the central Mexican civilizations, they exerted a tremendous intellectual influence upon Mexico and Central America. The Maya built some of the most elaborate cities on the continent, and made innovations in mathematics, astronomy, and calendrics. The Maya also developed the only true writing system native to the Americas using pictographs and syllabic elements in the form of texts and codices inscribed on stone, pottery, wood, or perishable books made from bark paper.

Aztec/Mexica/Triple Alliance civilization

With the decline of the Toltec civilization came political fragmentation in the Valley of Mexico. Into this new political game of contenders to the Toltec throne stepped outsiders: the Mexica. They were also a desert people, one of seven groups who formerly called themselves "Azteca", in memory of Aztlán, but they changed their name after years of migrating. Since they were not from the Valley of Mexico, they were initially seen as crude and unrefined in the ways of Nahuatl civilization. Through political maneuvers and ferocious martial skill, they managed to rule Mexico as the head of the 'Triple Alliance' which included two other Aztec cities, Texcoco and Tlacopan.

Latecomers to Mexico's central plateau, the Mexica thought of themselves, nevertheless, as heirs of the civilizations that had

preceded them. For them, arts, sculpture, architecture, engraving, feather-mosaic work, and the calendar, were bequest from the former inhabitants of Tula, the Toltecs.

The Mexica-Aztecs were the rulers of much of central Mexico by about 1400 (while Yaquis, Coras and Apaches commanded sizable regions of northern desert), having subjugated most of the other regional states by the 1470s. At their peak, 300,000 Mexica presided over a wealthy tribute-empire variously estimated at 5–8 million people in total a population of 8–12 million. The actual population is never more than an estimate. The modern name "Mexico" comes from their name.

Their capital, Tenochtitlan, is the site of modern-day Mexico City. At its peak, it was one of the largest cities in the world with population estimates of 200–300,000. The market established there was the largest ever seen by the conquistadors on arrival.

South America

By the first millennium, South America's vast rainforests, mountains, plains, and coasts were the home of millions of people. Estimates vary, but 30–50 million are often given and 100 million by some estimates. Some groups formed permanent settlements. Among those groups were Chibcha-speaking peoples ("Muisca" or "Muysca"), Valdivia, Quimbaya, Calima, Marajoara culture and the Tairona. The Muisca of Colombia, postdating the Herrera Period, Valdivia of Ecuador, the Quechuas and the Aymara of Peru and Bolivia were the four most important sedentary Amerindian groups in South America. From the 1970s, numerous geoglyphs have been

discovered on deforested land in the Amazon rainforest, Brazil, supporting Spanish accounts of a complex, possibly ancient Amazonian civilization.

The theory of pre-Columbian contact across the South Pacific Ocean between South America and Polynesia has received support from several lines of evidence, although solid confirmation remains elusive.

A diffusion by human agents has been put forward to explain the pre-Columbian presence in Oceania of several cultivated plant species native to South America, such as the bottle gourd (*Lagenaria siceraria*) or sweet potato (*Ipomoea batatas*). Direct archaeological evidence for such pre-Columbian contacts and transport has not emerged. Similarities noted in names of edible roots in Maori and Ecuadorian languages ("kumari") and Melanesian and Chilean ("gaddu") have been inconclusive.

A 2007 paper published in *PNAS* put forward DNA and archaeological evidence that domesticated chickens had been introduced into South America via Polynesia by late pre-Columbian times.

These findings were challenged by a later study published in the same journal, that cast doubt on the dating calibration used and presented alternative mtDNA analyses that disagreed with a Polynesian genetic origin. The origin and dating remains an open issue.

Whether or not early Polynesian–American exchanges occurred, no compelling human-genetic, archaeological, cultural or linguistic legacy of such contact has turned up.

Norte Chico civilization

On the north-central coast of present-day Peru, Norte Chico or Caral (as known in Peru) was a civilization that emerged around 3000 BCE (contemporary with urbanism's rise in Mesopotamia.) It is considered one of the cradles of civilization in the world. It had a cluster of large-scale urban settlements of which the Sacred City of Caral, in the Supe valley, is one of the largest and best studied sites. Norte Chico or Caral is the oldest known civilization in the Americas and persisted until around 1800 BCE.

Valdivia culture

The Valdivia culture was concentrated on the coast of Ecuador. Their existence was recently discovered by archeological findings. Their culture is among the oldest found in the Americas, spanning from 3500 to 1800 BCE. The Valdivia lived in a community of houses built in a circle or oval around a central plaza. They were sedentary people who lived off farming and fishing, though occasionally they hunted for deer. From the remains that have been found, scholars have determined that Valdivians cultivated maize,

kidney beans, squash, cassava, hot peppers, and cotton plants, the last of which was used to make clothing. Valdivian pottery initially was rough and practical, but it became showy, delicate, and big over time. They generally used red and gray colors; and the polished dark red pottery is characteristic of the Valdivia period. In its ceramics and stone works, the Valdivia culture shows a progression from the most simple to much more complicated works.

Cañari people

The Cañari were the indigenous natives of today's Ecuadorian provinces of Cañar and Azuay. They were an elaborate civilization with advanced architecture and complex religious beliefs. The Inca destroyed and burned most of their remains. The Cañari's old city was replaced twice, first by the Incan city of Tumebamba and later on the same site by the colonial city of Cuenca. The city was also believed to be the site of El Dorado, the city of gold from the mythology of Colombia. (see Cuenca)

The Cañari were most notable for having repelled the Incan invasion with fierce resistance for many years until they fell to Tupac Yupanqui. Many of their descendants are still present in Cañar. The majority did not mix with the colonists or become Mestizos.

Chavín civilization

The Chavín, a Peruvian preliterate civilization, established a trade network and developed agriculture by 900 BCE, according to some estimates and archeological finds. Artifacts were found at a site called Chavín in modern Peru at an elevation of 3,177 meters. The Chavín civilization spanned from 900 to 300 BCE.

Muisca people

The Chibcha-speaking communities were the most numerous, the most territorially extended and the most socio-economically developed of the pre-Hispanic Colombians. By the 8th century,

the indigenous people had established their civilization in the northern Andes. At one point, the Chibchas occupied part of what is now Panama, and the high plains of the Eastern Sierra of Colombia.

The areas which they occupied in Colombia were the present-day Departments of Santander (North and South), Boyacá and Cundinamarca. This is where the first farms and industries were developed. It is also where the independence movement originated. They are currently the richest areas in Colombia. The Chibcha developed the most populous zone between the Maya region and the Inca Empire. Next to the Quechua of Peru and the Aymara in Bolivia, the Chibcha of the eastern and north-eastern Highlands of Colombia developed the most notable culture among the sedentary indigenous peoples in South America.

In the Colombian Andes, the Chibcha comprised several tribes who spoke similar languages (Chibcha). They included the following: the Muisca, Guane, Lache, Cofán, and Chitareros.

Moche civilization

The Moche thrived on the north coast of Peru from about 100 to 800 CE. The heritage of the Moche is seen in their elaborate burials. Some were recently excavated by UCLA's Christopher B. Donnan in association with the National Geographic Society.

As skilled artisans, the Moche were a technologically advanced people. They traded with distant peoples such as the Maya. What has been learned about the Moche is based on study of their ceramic pottery; the carvings reveal details of their daily lives. The Larco Museum of Lima, Peru has an extensive

collection of such ceramics. They show that the people practiced human sacrifice, had blood-drinking rituals, and that their religion incorporated non-procreative sexual practices (such as fellatio).

Tiwanaku Empire

The Tiwanaku empire was based in western Bolivia and extended into present-day Peru and Chile from 300 to 1000. Tiwanaku is recognized by Andean scholars as one of the most important South American civilizations prior to the birth of the Inca Empire in Peru; it was the ritual and administrative capital of a major state power for approximately five hundred years.

The ruins of the ancient city state are near the south-eastern shore of Lake Titicaca in Tiwanaku Municipality, Ingavi Province, La Paz Department, about 72 kilometres (45 mi) west of La Paz.

Inca Empire

- Holding their capital at the great cougar-shaped city of Cuzco, Peru, the Inca civilization dominated the Andes region from 1438 to 1533. Known as *Tawantinsuyu*, or "the land of the four regions", in Quechua, the Inca civilization was highly distinct and developed. Inca rule extended to nearly a hundred linguistic or ethnic communities, some 9 to 14 million people connected by a 40,000 kilometer road system. Cities were built with precise stonework, constructed over many levels of mountain

terrain. Terrace farming was a useful form of agriculture. There is evidence of excellent metalwork and even successful brain surgery in Inca civilization.

Cambeba

Also known as the Omagua, Umana and Kambeba, the Cambeba are an indigenous people in Brazil's Amazon basin. The Cambeba were a populous, organized society in the late Pre-Columbian era whose population suffered steep decline in the early years of the Columbian Exchange.

The Spanish explorer Francisco de Orellana traversed the Amazon River during the 16th century and reported densely populated regions running hundreds of kilometers along the river.

These populations left no lasting monuments, possibly because they used local wood as their construction material as stone was not locally available. While it is possible Orellana may have exaggerated the level of development among the Amazonians, their semi-nomadic descendants have the odd distinction among tribal indigenous societies of a hereditary, yet landless, aristocracy.

Archaeological evidence has revealed the continued presence of semi-domesticated orchards, as well as vast areas of land enriched with terra preta. Both of these discoveries, along with Cambeba ceramics discovered within the same archaeological levels suggest that a large and organized civilization existed in the area.

Agricultural development

Early inhabitants of the Americas developed agriculture, developing and breeding maize (corn) from ears 2–5 cm in length to the current size that are familiar today. Potatoes, tomatoes, tomatillos (a husked green tomato), pumpkins, chili peppers, squash, beans, pineapple, sweet potatoes, the grains quinoa and amaranth, cocoa beans, vanilla, onion, peanuts, strawberries, raspberries, blueberries, blackberries, papaya, and avocados were among other plants grown by natives. Over two-thirds of all types of food crops grown worldwide are native to the Americas.

The natives began using fire in a widespread manner. Intentional burning of vegetation was taken up to mimic the effects of natural fires that tended to clear forest understories, thereby making travel easier and facilitating the growth of herbs and berry-producing plants that were important for both food and medicines. This created the Pre-Columbian savannas of North America.

While not as widespread as in other areas of the world (Asia, Africa, Europe), indigenous Americans did have livestock. Domesticated turkeys were common in Mesoamerica and in some regions of North America; they were valued for their meat, feathers, and, possibly, eggs.

There is documentation of Mesoamericans utilizing hairless dogs, especially the Xoloitzcuintle breed, for their meat. Andean societies had llamas and alpacas for meat and wool, as well as for beasts of burden. Guinea pigs were raised for meat in the Andes. Iguanas and a range of wild animals, such as

deer and pecari, were another source of meat in Mexico, Central, and northern South America. By the 15th century, maize had been transmitted from Mexico and was being farmed in the Mississippi embayment, as far as the East Coast of the United States, and as far north as southern Canada. Potatoes were utilized by the Inca, and chocolate was used by the Aztecs.

Chapter 7

Pyramid of the Sun Built Near Modern-day Mexico City

The **Pyramid of the Sun** is the largest building in Teotihuacan, and one of the largest in Mesoamerica. It is believed to have been constructed about 200 AD. Found along the Avenue of the Dead, in between the Pyramid of the Moon and the Ciudadela, and in the shadow of the mountain Cerro Gordo, the pyramid is part of a large complex in the heart of the city.

History

The name *Pyramid of the Sun* comes from the Aztecs, who visited the city of Teotihuacan centuries after it was abandoned; the name given to the pyramid by the Teotihuacanos is unknown. It was constructed in two phases. The first construction stage, around 200 CE, brought the pyramid to nearly the size it is today. The second round of construction resulted in its completed size of 225 meters (738 feet) across and 75 meters (246 feet) high, making it the third-largest pyramid in the world, though still just over half the height of the Great Pyramid of Giza (146 metres). The second phase also saw the construction of an altar atop of the pyramid which has not survived into modern times.

Over the structure, the ancient Teotihuacanos finished their pyramid with lime plaster imported from surrounding areas, on which they painted brilliantly colored murals. While the

pyramid has endured for centuries, the paint and plaster have not and are no longer visible. Jaguar heads and paws, stars, and snake rattles are among the few images associated with the pyramids.

It is thought that the pyramid venerated a deity within Teotihuacan society. However, little evidence exists to support this hypothesis.

The destruction of the temple on top of the pyramid, by both deliberate and natural forces prior to the archaeological study of the site, has so far prevented identification of the pyramid with any particular deity.

The pyramid was built on a carefully selected spot, from where it was possible to align it both to the prominent Cerro Gordo to the north and, in perpendicular directions, to sunrises and sunsets on specific dates, recorded by a number of architectural orientations in Mesoamerica. The whole central part of the urban grid of Teotihuacan, including the Avenue of the Dead, reproduces the orientation of the Sun Pyramid, while the southern part exhibits a slightly different orientation, dictated by the Ciudadela.

The pyramid was built over a man-made tunnel leading to a "cave" located six metres down beneath the centre of the structure. Originally this was believed to be a naturally formed lava tube and interpreted as possibly the place of Chicomoztoc, the place of human origin according to Nahua legends.

More recent excavations have suggested that the space is man-made and could have served as a royal tomb. Recently scientists have used muon detectors to try to find other

chambers within the interior of the pyramid, but substantial looting has prevented the discovery of a function for the chambers in Teotihuacan society.

Recovered artifacts

Only a few caches of artifacts have been found in and around the pyramid. Obsidian arrowheads and human figurines have been discovered inside the pyramid and similar objects have been found at the nearby Pyramid of the Moon and Pyramid of the Feathered Serpent in the Ciudadela.

These objects may have represented sacrificial victims. A unique historical artifact discovered near the foot of the pyramid at the end of the nineteenth century was the Teotihuacan Ocelot, which is now in the British Museum's collection. In addition, burial sites of children have been found in excavations at the corners of the pyramid. It is believed that these burials were part of a sacrificial ritual dedicating the building of the pyramid.

Mexico City

- **Mexico City** is the capital and largest city of Mexico and the most populous city in North America. Mexico City is one of the most important cultural and financial centers in the world. It is located in the Valley of Mexico (*Valle de México*), a large valley in the high plateaus in the center of Mexico, at an altitude of 2,240 meters (7,350 ft). The city has 16 subdivisions known as boroughs or *demarcaciones territoriales*.

The 2020 population for the city proper was 9,209,944, with a land area of 1,485 square kilometers (573 sq mi). According to the most recent definition agreed upon by the federal and state governments, the population of Greater Mexico City is 21,804,515, which makes it the second-largest metropolitan area in the Western Hemisphere (behind São Paulo, Brazil), the eleventh-largest agglomeration (2017), and the largest Spanish-speaking city in the world.

Greater Mexico City has a GDP of \$411 billion in 2011, which makes it one of the most productive urban areas in the world. The city was responsible for generating 15.8% of Mexico's GDP, and the metropolitan area accounted for about 22% of the country's GDP. If it were an independent country in 2013, Mexico City would be the fifth-largest economy in Latin America.

Mexico's capital is both the oldest capital city in the Americas and one of two founded by indigenous people. The city was originally built on an island of Lake Texcoco by the Aztecs in 1325 as Tenochtitlan, which was almost completely destroyed in the 1521 Siege of Tenochtitlan and subsequently redesigned and rebuilt in accordance with the Spanish urban standards. In 1524, the municipality of Mexico City was established, known as *México Tenochtitlán*, and as of 1585, it was officially known as *Ciudad de México* (Mexico City). Mexico City was the political, administrative, and financial center of a major part of the Spanish colonial empire. After independence from Spain was achieved, the federal district was created in 1824.

After years of demanding greater political autonomy, residents were finally given the right to elect both a head of government

and the representatives of the unicameral Legislative Assembly by election in 1997. Ever since, left-wing parties (first the Party of the Democratic Revolution and later the National Regeneration Movement) have controlled both of them. The city has several progressive policies, such as abortion on demand, a limited form of euthanasia, no-fault divorce, and same-sex marriage.

On 29 January 2016, it ceased to be the *Federal District* (Spanish: *Distrito Federal* or *D.F.*) and is now officially known as *Ciudad de México* (or *CDMX*), with a greater degree of autonomy. A clause in the Constitution of Mexico, however, prevents it from becoming a state within the Mexican federation, as it is the seat of power in the country, unless the capital of the country were to be relocated elsewhere.

History

The oldest signs of human occupation in the area of Mexico City are those of the "Peñon woman" and others found in San Bartolo Atepehuacan (Gustavo A. Madero).

They were believed to correspond to the lower Cenolithic period (9500–7000 BC). However, recent studies place the age of the Peñon woman at 12,700 years old, making her one of the oldest human remains discovered in the Americas. Studies of her mitochondrial DNA suggest she was either of Asian origin, or Caucasian having an appearance like Western Europeans, or Aboriginal Australian.

The area was the destination of the migrations of the Teochichimecas during the 8th and 13th centuries, peoples

that would give rise to the Toltec, and Mexica (Aztecs) cultures. The latter arrived around the 14th century to settle first on the shores of the lake.

Aztec period

The city of Mexico-Tenochtitlan was founded by the Mexica people in 1325. The old Mexica city that is now simply referred to as Tenochtitlan was built on an island in the center of the inland lake system of the Valley of Mexico, which it shared with a smaller city-state called Tlatelolco.

According to legend, the Mexicas' principal god, Huitzilopochtli, indicated the site where they were to build their home by presenting a golden eagle perched on a prickly pear devouring a rattlesnake.

Between 1325 and 1521, Tenochtitlan grew in size and strength, eventually dominating the other city-states around Lake Texcoco and in the Valley of Mexico. When the Spaniards arrived, the Aztec Empire had reached much of Mesoamerica, touching both the Gulf of Mexico and the Pacific Ocean.

Spanish conquest

After landing in Veracruz, Spanish explorer Hernán Cortés advanced upon Tenochtitlan with the aid of many of the other native peoples, arriving there on 8 November 1519. Cortés and his men marched along the causeway leading into the city from Iztapalapa, and the city's ruler, Moctezuma II, greeted the Spaniards; they exchanged gifts, but the camaraderie did not last long. Cortés put Moctezuma under house arrest, hoping to rule through him.

Tensions increased until, on the night of 30 June 1520 – during a struggle known as "La Noche Triste" – the Aztecs rose up against the Spanish intrusion and managed to capture or drive out the Europeans and their Tlaxcalan allies. Cortés regrouped at Tlaxcala. The Aztecs thought the Spaniards were permanently gone, and they elected a new king, Cuitláhuac, but he soon died; the next king was Cuauhtémoc.

Cortés began a siege of Tenochtitlan in May 1521. For three months, the city suffered from the lack of food and water as well as the spread of smallpox brought by the Europeans. Cortés and his allies landed their forces in the south of the island and slowly fought their way through the city. Cuauhtémoc surrendered in August 1521. The Spaniards practically razed Tenochtitlan during the final siege of the conquest.

Rebuilding

Cortés first settled in Coyoacán, but decided to rebuild the Aztec site to erase all traces of the old order. He did not establish a territory under his own personal rule, but remained loyal to the Spanish crown. The first Spanish viceroy arrived in Mexico City fourteen years later. By that time, the city had again become a city-state, having power that extended far beyond its borders.

Although the Spanish preserved Tenochtitlan's basic layout, they built Catholic churches over the old Aztec temples and claimed the imperial palaces for themselves. Tenochtitlan was renamed "Mexico" because the Spanish found the word easier to pronounce.

Growth of colonial Mexico City

The city had been the capital of the Aztec empire and in the colonial era, Mexico City became the capital of New Spain. The viceroy of Mexico or vice-king lived in the viceregal palace on the main square or Zócalo. The Mexico City Metropolitan Cathedral, the seat of the Archbishopric of New Spain, was constructed on another side of the Zócalo, as was the archbishop's palace, and across from it the building housing the city council or *ayuntamiento* of the city.

A late seventeenth-century painting of the Zócalo by Cristóbal de Villalpando depicts the main square, which had been the old Aztec ceremonial center.

The existing central place of the Aztecs was effectively and permanently transformed to the ceremonial center and seat of power during the colonial period, and remains to this day in modern Mexico, the central place of the nation.

The rebuilding of the city after the siege of Tenochtitlan was accomplished by the abundant indigenous labor in the surrounding area.

Franciscan friar Toribio de Benavente Motolinia, one of the Twelve Apostles of Mexico who arrived in New Spain in 1524, described the rebuilding of the city as one of the afflictions or plagues of the early period:

The seventh plague was the construction of the great City of Mexico, which, during the early years used more people than in the construction of Jerusalem. The crowds of laborers were so numerous that one could hardly move in the streets and

causeways, although they are very wide. Many died from being crushed by beams, or falling from high places, or in tearing down old buildings for new ones.

Preconquest Tenochtitlan was built in the center of the inland lake system, with the city reachable by canoe and by wide causeways to the mainland. The causeways were rebuilt under Spanish rule with indigenous labor.

Colonial Spanish cities were constructed on a grid pattern, if no geographical obstacle prevented it. In Mexico City, the Zócalo (main square) was the central place from which the grid was then built outward. The Spanish lived in the area closest to the main square in what was known as the *traza*, in orderly, well laid-out streets. Indian residences were outside that exclusive zone and houses were haphazardly located.

Spaniards sought to keep Indians separate from Spaniards but since the Zócalo was a center of commerce for Indians, they were a constant presence in the central area, so strict segregation was never enforced. At intervals Zócalo was where major celebrations took place as well as executions. It was also the site of two major riots in the seventeenth century, one in 1624, the other in 1692.

The city grew as the population did, coming up against the lake's waters. As the depth of the lake water fluctuated, Mexico City was subject to periodic flooding. A major labor draft, the *desagüe*, compelled thousands of Indians over the colonial period to work on infrastructure to prevent flooding. Floods were not only an inconvenience but also a health hazard, since during flood periods human waste polluted the city's streets. By draining the area, the mosquito population dropped as did

the frequency of the diseases they spread. However, draining the wetlands also changed the habitat for fish and birds and the areas accessible for Indian cultivation close to the capital.

The 16th century saw a proliferation of churches, many of which can still be seen today in the historic center. Economically, Mexico City prospered as a result of trade. Unlike Brazil or Peru, Mexico had easy contact with both the Atlantic and Pacific worlds. Although the Spanish crown tried to completely regulate all commerce in the city, it had only partial success.

The concept of nobility flourished in New Spain in a way not seen in other parts of the Americas. Spaniards encountered a society in which the concept of nobility mirrored that of their own. Spaniards respected the indigenous order of nobility and added to it. In the ensuing centuries, possession of a noble title in Mexico did not mean one exercised great political power, for one's power was limited even if the accumulation of wealth was not.

The concept of nobility in Mexico was not political but rather a very conservative Spanish social one, based on proving the worthiness of the family. Most of these families proved their worth by making fortunes in New Spain outside of the city itself, then spending the revenues in the capital, building churches, supporting charities and building extravagant palatial homes. The craze to build the most opulent residence possible reached its height in the last half of the 18th century. Many of these palaces can still be seen today, leading to Mexico City's nickname of "The city of palaces" given by Alexander Von Humboldt.

The Grito de Dolores ("Cry of Dolores"), also known as El Grito de la Independencia ("Cry of Independence"), marked the beginning of the Mexican War of Independence. The Battle of Guanajuato, the first major engagement of the insurgency, occurred four days later. After a decade of war, Mexico's independence from Spain was effectively declared in the Declaration of Independence of the Mexican Empire on 27 September 1821. Agustín de Iturbide is proclaimed Emperor of the First Mexican Empire by Congress, crowned in the Cathedral of Mexico. Unrest followed for the next several decades, as different factions fought for control of Mexico.

The Mexican Federal District was established by the new government and by the signing of their new constitution, where the concept of a federal district was adapted from the United States Constitution. Before this designation, Mexico City had served as the seat of government for both the State of Mexico and the nation as a whole. Texcoco de Mora and then Toluca became the capital of the State of Mexico.

Battle of Mexico City in the U.S.–Mexican War of 1847

During the 19th century, Mexico City was the center stage of all the political disputes of the country. It was the imperial capital on two occasions (1821–1823 and 1864–1867), and of two federalist states and two centralist states that followed innumerable coups d'états in the space of half a century before the triumph of the Liberals after the Reform War. It was also the objective of one of the two French invasions to Mexico (1861–1867), and occupied for a year by American troops in the framework of the Mexican–American War (1847–1848).

The Battle for Mexico City was the series of engagements from 8 to 15 September 1847, in the general vicinity of Mexico City during the U.S. Mexican War. Included are major actions at the battles of Molino del Rey and Chapultepec, culminating with the fall of Mexico City.

The U.S. Army under Winfield Scott scored a major success that ended the war. The American invasion into the Federal District was first resisted during the Battle of Churubusco on 8 August, where the Saint Patrick's Battalion, which was composed primarily of Catholic Irish and German immigrants but also Canadians, English, French, Italians, Poles, Scots, Spaniards, Swiss, and Mexicans, fought for the Mexican cause, repelling the American attacks. After defeating the Saint Patrick's Battalion, the Mexican–American War came to a close after the United States deployed combat units deep into Mexico resulting in the capture of Mexico City and Veracruz by the U.S. Army's 1st, 2nd, 3rd and 4th Divisions. The invasion culminated with the storming of Chapultepec Castle in the city itself.

During this battle, on 13 September, the 4th Division, under John A. Quitman, spearheaded the attack against Chapultepec and carried the castle. Future Confederate generals George E. Pickett and James Longstreet participated in the attack. Serving in the Mexican defense were the cadets later immortalized as *Los Niños Héroes* (the "Boy Heroes").

The Mexican forces fell back from Chapultepec and retreated within the city. Attacks on the Belén and San Cosme Gates came afterwards. The treaty of Guadalupe Hidalgo was signed in what is now the far north of the city.

Porfirian era (1876–1911)

Events such as the Mexican–American War, the French Intervention and the Reform War left the city relatively untouched and it continued to grow, especially during the rule of President Porfirio Díaz. During this time the city developed a modern infrastructure, such as roads, schools, transportation systems and communication systems. However the regime concentrated resources and wealth into the city while the rest of the country languished in poverty.

Under the rule of Porfirio Díaz, Mexico City experienced a massive transformation. Díaz's goal was to create a city which could rival the great European cities. He and his government came to the conclusion that they would use Paris as a model, while still containing remnants of Amerindian and Hispanic elements.

This style of Mexican-French fusion architecture became colloquially known as Porfirian Architecture. Porfirian architecture became very influenced by Paris' Haussmannization.

During this era of Porfirian rule, the city underwent an extensive modernization. Many Spanish Colonial style buildings were destroyed, replaced by new much larger Porfirian institutions and many outlying rural zones were transformed into urban or industrialized districts with most having electrical, gas and sewage utilities by 1908. While the initial focus was on developing modern hospitals, schools, factories and massive public works, perhaps the most long-lasting effects of the Porfirian modernization were creation of

the Colonia Roma area and the development of Reforma Avenue. Many of Mexico City's major attractions and landmarks were built during this era in this style.

Diaz's plans called for the entire city to eventually be modernized or rebuilt in the Porfirian/French style of the Colonia Roma; but the Mexican Revolution began soon afterward and the plans never came to fruition, with many projects being left half-completed. One of the best examples of this is the Monument to the Mexican Revolution. Originally the monument was to be the main dome of Diaz's new senate hall, but when the revolution erupted only the dome of the senate hall and its supporting pillars were completed, this was subsequently seen as a symbol by many Mexicans that the Porfirian era was over once and for all and as such, it was turned into a monument to victory over Diaz.

Mexican Revolution (1910–1920)

The capital escaped the worst of the violence of the ten-year conflict of the Mexican Revolution. The most significant episode of this period for the city was the February 1913 *la Decena Trágica* ("The Ten Tragic Days"), when forces counter to the elected government of Francisco I. Madero staged a successful coup. The center of the city was subjected to artillery attacks from the army stronghold of the *ciudadela* or citadel, with significant civilian casualties and the undermining of confidence in the Madero government. Victoriano Huerta, chief general of the Federal Army, saw a chance to take power, forcing Madero and Pino Suarez to sign resignations. The two were murdered later while on their way to Lecumberri prison. Huerta's ouster in July 1914 saw the

entry of the armies of Pancho Villa and Emiliano Zapata, but the city did not experience violence. Huerta had abandoned the capital and the conquering armies marched in. Venustiano Carranza's Constitutionalist faction ultimately prevailed in the revolutionary civil war and Carranza took up residence in the presidential palace.

20th century to present

The history of the rest of the 20th century to the present focuses on the phenomenal growth of the city and its environmental and political consequences. In 1900, the population of Mexico City was about 500,000. The city began to grow rapidly westward in the early part of the 20th century and then began to grow upwards in the 1950s, with the Torre Latinoamericana becoming the city's first skyscraper.

The rapid development of Mexico City as a center for modernist architecture was most fully manifested in the mid-1950s construction of the Ciudad Universitaria, Mexico City, the main campus of the National Autonomous University of Mexico. Designed by the most prestigious architects of the era, including Mario Pani, Eugenio Peschard, and Enrique del Moral, the buildings feature murals by artists Diego Rivera, David Alfaro Siqueiros, and José Chávez Morado. It has since been recognized as a UNESCO World Heritage Site.

The 1968 Olympic Games brought about the construction of large sporting facilities. In 1969, the Metro system was inaugurated. Explosive growth in the population of the city started in the 1960s, with the population overflowing the boundaries of the Federal District into the neighboring State of

Mexico, especially to the north, northwest, and northeast. Between 1960 and 1980 the city's population more than doubled to nearly 9 million.

In 1980 half of all the industrial jobs in Mexico were located in Mexico City. Under relentless growth, the Mexico City government could barely keep up with services. Villagers from the countryside who continued to pour into the city to escape poverty only compounded the city's problems. With no housing available, they took over lands surrounding the city, creating huge shantytowns that extended for many miles. This caused serious air pollution in Mexico City and water pollution problems, as well as subsidence due to overextraction of groundwater.

Air and water pollution has been contained and improved in several areas due to government programs, the renovation of vehicles and the modernization of public transportation.

The autocratic government that ruled Mexico City since the Revolution was tolerated, mostly because of the continued economic expansion since World War II. This was the case even though this government could not handle the population and pollution problems adequately. Nevertheless, discontent and protests began in the 1960s leading to the massacre of an unknown number of protesting students in Tlatelolco.

Three years later, a demonstration in the Maestros avenue, organized by former members of the 1968 student movement, was violently repressed by a paramilitary group called "Los Halcones", composed of gang members and teenagers from many sports clubs who received training in the U.S.

On Thursday, 19 September 1985, at 7:19 am CST, Mexico City was struck by an earthquake of magnitude 8.1 on the Richter magnitude scale. Although this earthquake was not as deadly or destructive as many similar events in Asia and other parts of Latin America, it proved to be a disaster politically for the one-party government. The government was paralyzed by its own bureaucracy and corruption, forcing ordinary citizens to create and direct their own rescue efforts and to reconstruct much of the housing that was lost as well.

However, the last straw may have been the controversial elections of 1988. That year, the presidency was set between the P.R.I.'s candidate, Carlos Salinas de Gortari, and a coalition of left-wing parties led by Cuauhtémoc Cárdenas, son of the former president Lázaro Cárdenas. The counting system "fell" because coincidentally the light went out and suddenly, when it returned, the winning candidate was Salinas, even though Cárdenas had the upper hand.

As a result of the fraudulent election, Cárdenas became a member of the Party of the Democratic Revolution. Discontent over the election eventually led Cuauhtémoc Cárdenas to become the first elected mayor of Mexico City in 1997. Cárdenas promised a more democratic government, and his party claimed some victories against crime, pollution, and other major problems. He resigned in 1999 to run for the presidency.

Geography

Mexico City is located in the Valley of Mexico, sometimes called the Basin of Mexico. This valley is located in the Trans-

Mexican Volcanic Belt in the high plateaus of south-central Mexico. It has a minimum altitude of 2,200 meters (7,200 feet) above sea level and is surrounded by mountains and volcanoes that reach elevations of over 5,000 meters (16,000 feet). This valley has no natural drainage outlet for the waters that flow from the mountainsides, making the city vulnerable to flooding. Drainage was engineered through the use of canals and tunnels starting in the 17th century.

Mexico City primarily rests on what was Lake Texcoco. Seismic activity is frequent there. Lake Texcoco was drained starting from the 17th century. Although none of the lake waters remain, the city rests on the lake bed's heavily saturated clay. This soft base is collapsing due to the over-extraction of groundwater, called *groundwater-related subsidence*. Since the beginning of the 20th century the city has sunk as much as nine meters (30 feet) in some areas. This sinking is causing problems with runoff and wastewater management, leading to flooding problems, especially during the summer. The entire lake bed is now paved over and most of the city's remaining forested areas lie in the southern boroughs of Milpa Alta, Tlalpan and Xochimilco.

Climate

Mexico City has a subtropical highland climate (Köppen climate classification *Cwb*), due to its tropical location but high elevation.

The lower region of the valley receives less rainfall than the upper regions of the south; the lower boroughs of Iztapalapa, Iztacalco, Venustiano Carranza and the east portion of Gustavo

A. Madero are usually drier and warmer than the upper southern boroughs of Tlalpan and Milpa Alta, a mountainous region of pine and oak trees known as the range of Ajusco.

The average annual temperature varies from 12 to 16 °C (54 to 61 °F), depending on the altitude of the borough. The temperature is rarely below 3 °C (37 °F) or above 30 °C (86 °F). At the Tacubaya observatory, the lowest temperature ever registered was –4.4 °C (24 °F) on 13 February 1960, and the highest temperature on record was 33.9 °C (93 °F) on 9 May 1998.

Overall precipitation is heavily concentrated in the summer months, and includes dense hail.

Snow falls in the city very rarely, although somewhat more often in nearby mountain tops. Throughout its history, the Central Valley of Mexico was accustomed to having several snowfalls per decade (including a period between 1878 and 1895 in which every single year—except 1880—recorded snowfalls) mostly lake-effect snow.

The effects of the draining of Lake Texcoco and global warming have greatly reduced snowfalls after the snow flurries of 12 February 1907. Since 1908, snow has only fallen three times, snow on 14 February 1920; snow flurries on 14 March 1940; and on 12 January 1967, when 8 centimeters (3 in) of snow fell on the city, the most on record.

The 1967 snowstorm coincided with the operation of *Deep Drainage System* that resulted in the total draining of what was left of Lake Texcoco. After the disappearance of Lake Texcoco, snow has never fallen again over Mexico City.

The region of the Valley of Mexico receives anti-cyclonic systems. The weak winds of these systems do not allow for the dispersion, outside the basin, of the air pollutants which are produced by the 50,000 industries and 4 million vehicles operating in and around the metropolitan area.

The area receives about 820 millimeters (32 in) of annual rainfall, which is concentrated from May through October with little or no precipitation the remainder of the year. The area has two main seasons. The wet humid summer runs from May to October when winds bring in tropical moisture from the sea, the wettest month being July. The cool sunny winter runs from November to April, when the air is relatively drier, the driest month being December. This season is subdivided into a cold winter period and a warm spring period. The cold period spans from November to February, when polar air masses push down from the north and keep the air fairly dry. The warm period extends from March to May when subtropical winds again dominate but do not yet carry enough moisture for rain to form.

Environment

Originally much of the valley lay beneath the waters of Lake Texcoco, a system of interconnected salt and freshwater lakes. The Aztecs built dikes to separate the fresh water used to raise crops in *chinampas* and to prevent recurrent floods. These dikes were destroyed during the siege of Tenochtitlan, and during colonial times the Spanish regularly drained the lake to prevent floods. Only a small section of the original lake remains, located outside Mexico City, in the municipality of Atenco, State of Mexico.

Architects Teodoro González de León and Alberto Kalach along with a group of Mexican urbanists, engineers and biologists have developed the project plan for *Recovering the City of Lakes*. If approved by the government the project will contribute to the supply of water from natural sources to the Valley of Mexico, the creation of new natural spaces, a great improvement in air quality, and greater population establishment planning.

Pollution

By the 1990s Mexico City had become infamous as one of the world's most polluted cities; however, the city has become a model for drastically lowering pollution levels. By 2014 carbon monoxide pollution had dropped drastically, while sulfur dioxide and nitrogen dioxide were at levels about a third of those in 1992. The levels of signature pollutants in Mexico City are similar to those of Los Angeles. Despite the cleanup, the metropolitan area is still the most ozone-polluted part of the country, with ozone levels 2.5 times beyond WHO-defined safe limits.

To clean up pollution, the federal and local governments implemented numerous plans including the constant monitoring and reporting of environmental conditions, such as ozone and nitrogen oxides. When the levels of these two pollutants reached critical levels, contingency actions were implemented which included closing factories, changing school hours, and extending the *A day without a car* program to two days of the week. The government also instituted industrial technology improvements, a strict biannual vehicle emission inspection and the reformulation of gasoline and diesel fuels.

The introduction of Metrobús bus rapid transit and the Ecobici bike-sharing were among efforts to encourage alternate, greener forms of transportation.

Politics

Political structure

The Acta Constitutiva de la Federación of 31 January 1824, and the Federal Constitution of 4 October 1824, fixed the political and administrative organization of the United Mexican States after the Mexican War of Independence. In addition, Section XXVIII of Article 50 gave the new Congress the right to choose where the federal government would be located. This location would then be appropriated as federal land, with the federal government acting as the local authority. The two main candidates to become the capital were Mexico City and Querétaro.

Due in large part to the persuasion of representative Servando Teresa de Mier, Mexico City was chosen because it was the center of the country's population and history, even though Querétaro was closer to the center geographically. The choice was official on 18 November 1824, and Congress delineated a surface area of two leagues square (8,800 acres) centered on the Zocalo. This area was then separated from the State of Mexico, forcing that state's government to move from the Palace of the Inquisition (now Museum of Mexican Medicine) in the city to Texcoco. This area did not include the population centers of the towns of Coyoacán, Xochimilco, Mexicaltzingo and Tlalpan, all of which remained as part of the State of Mexico.

In 1854 president Antonio López de Santa Anna enlarged the area of Mexico City almost eightfold from the original 220 to 1,700 km (80 to 660 sq mi), annexing the rural and mountainous areas to secure the strategic mountain passes to the south and southwest to protect the city in event of a foreign invasion. (The Mexican–American War had just been fought.) The last changes to the limits of Mexico City were made between 1898 and 1902, reducing the area to the current 1,479 km (571 sq mi) by adjusting the southern border with the state of Morelos. By that time, the total number of municipalities within Mexico City was twenty-two.

While Mexico City was ruled by the federal government through an appointed governor, the municipalities within it were autonomous, and this duality of powers created tension between the municipalities and the federal government for more than a century. In 1903, Porfirio Díaz largely reduced the powers of the municipalities within the Federal District. Eventually, in December 1928, the federal government decided to abolish all the municipalities of the Federal District. In place of the municipalities, the Federal District was divided into one "Central Department" and 13 *delegaciones* (boroughs) administered directly by the government of the Federal District. The Central Department was integrated by the former municipalities of Mexico City, Tacuba, Tacubaya and Mixcoac.

In 1941, the General Anaya borough was merged with the Central Department, which was then renamed "Mexico City" (thus reviving the name but not the autonomous municipality). From 1941 to 1970, the Federal District comprised twelve *delegaciones* and Mexico City. In 1970, Mexico City was split into four different *delegaciones*: Cuauhtémoc, Miguel Hidalgo,

Venustiano Carranza and Benito Juárez, increasing the number of *delegaciones* to 16. Since then, the whole Federal District, whose *delegaciones* had by then almost formed a single urban area, began to be considered *de facto* a synonym of Mexico City.

The lack of a *de jure* stipulation left a legal vacuum that led to a number of sterile discussions about whether one concept had engulfed the other or if the latter had ceased to exist altogether. In 1993, the situation was solved by an amendment to the 44th article of the Constitution of Mexico; Mexico City and the Federal District were stated to be the same entity. The amendment was later introduced into the second article of the Statute of Government of the Federal District.

On 29 January 2016, Mexico City ceased to be the *Federal District* (Spanish: *Distrito Federal* or D.F.), and was officially renamed "Ciudad de México" (or "CDMX"). On that date, Mexico City began a transition to becoming the country's 32nd federal entity, giving it a level of autonomy comparable to that of a state. It will have its own constitution and its legislature, and its *delegaciones* will now be headed by mayors. Because of a clause in the Mexican Constitution, however, as it is the seat of the powers of the federation, it can never become a state, or the capital of the country has to be relocated elsewhere.

Mexico City, being the seat of the powers of the Union, belongs not to any particular state but to all of them. Therefore, the president, representing the federation, used to designate the head of government of the national capital (today the head of the government of Mexico City), sometimes called outside Mexico as the "Mayor" of Mexico City. In the 1980s, the

dramatic increase in the population of the previous decades, the inherent political inconsistencies of the system, and dissatisfaction with the inadequate response of the federal government after the 1985 earthquake made residents begin to request political and administrative autonomy to manage their local affairs.

In response to the demands, Mexico City received a greater degree of autonomy, with the 1987 elaboration the first Statute of Government (*Estatuto de Gobierno*) and the creation of an assembly of representatives.

In the 1990s, this autonomy was further expanded, and since 1997, residents can directly elect the head of government to Mexico City and the representatives of a unicameral Legislative Assembly, which succeeded the previous assembly, by popular vote.

The first elected head of government was Cuauhtémoc Cárdenas. He resigned in 1999 to run in the 2000 presidential elections and designated Rosario Robles to succeed him, who became the first woman, elected or otherwise, to govern Mexico City. In 2000, Andrés Manuel López Obrador was elected, and he resigned in 2005 to run in the 2006 presidential elections; Alejandro Encinas was designated by the Legislative Assembly to finish the term. In 2006, Marcelo Ebrard was elected to serve until 2012.

The city has a Statute of Government, and as of its ratification on 31 January 2017, a constitution, similar to the states of the Union. As part of the recent changes in autonomy, the budget is administered locally; it is proposed by the head of government and approved by the Legislative Assembly.

Nonetheless, it is the Congress of the Union that sets the ceiling to internal and external public debt issued by the city government.

According to the 44th article of the Mexican Constitution, if the powers of the Union move to another city, Mexico City would become a new state, the "State of the Valley of Mexico", with the new limits set by the Congress of the Union.

Elections and government

In 2012, elections were held for the post of head of government and the representatives of the Legislative Assembly. Heads of government are elected for a six-year period without the possibility of re-election. Traditionally, the position has been considered as the second most important executive office in the country.

The Legislative Assembly of Mexico City is formed, as it is the case for state legislatures in Mexico, by both single-seat and proportional seats, making it a system of parallel voting. Mexico City is divided into 40 electoral constituencies of similar population which elect one representative by the plurality voting system, locally called "uninominal deputies." Mexico City, as a whole, is a single constituency for the parallel election of 26 representatives, elected by proportional representation, with open-party lists, locally called "plurinominal deputies."

Even though proportionality is supposed to prevent a party from being overrepresented, several restrictions apply in the assignation of the seats. No party can have more than 63% of all seats, both uninominal and plurinominal. In the 2006

elections, the PRD got the absolute majority in the direct uninominal elections, securing 34 of the 40 FPP seats. As such, the PRD was not assigned any plurinominal seat to comply with the law that prevents over-representation.

The politics pursued by the administrations of heads of government in Mexico City since the second half of the 20th century have usually been more liberal than those of the rest of the country, whether with the support of the federal government, as was the case with the approval of several comprehensive environmental laws in the 1980s, or by laws that were since approved by the Legislative Assembly.

The Legislative Assembly expanded provisions on abortions, becoming the first federal entity to expand abortion in Mexico beyond cases of rape and economic reasons, to permit it at the choice of the mother before the 12th week of pregnancy. In December 2009, the then Federal District became the first city in Latin America and one of very few in the world to legalize same-sex marriage.

Boroughs and neighborhoods

After the political reforms on 2016, the city is divided for administrative purposes into 16 boroughs (*demarcaciones territoriales*, colloquially *alcadías*), formerly called *delegaciones*. While they are not fully equivalent to municipalities, the boroughs have gained significant autonomy. Formerly appointed by the Federal District's head of government, local authorities were first elected directly by plurality in 2000. From 2016, each borough is headed by a mayor, expanding their local government powers.

The boroughs of Mexico City with their 2020 populations are:

1. Álvaro Obregón (pop. 759,137)
2. Azcapotzalco (pop. 432,205)
3. Benito Juárez (pop. 434,153)
4. Coyoacán (pop. 614,447)
5. Cuajimalpa (pop. 217,686)
6. Cuauhtémoc (pop. 545,884)
7. Gustavo A. Madero (pop. 1,173,351)
8. Iztacalco (pop. 404,695)
9. Iztapalapa (pop. 1,835,486)
10. La Magdalena Contreras (pop. 247,622)
11. Miguel Hidalgo (pop. 414,470)
12. Milpa Alta (pop. 152,685)
13. Tláhuac (pop. 392,313)
14. Tlalpan (pop. 699,928)
15. Venustiano Carranza (pop. 443,704)
16. Xochimilco (pop. 442,178)

The boroughs are composed of hundreds of *colonias*, or neighborhoods, which have no jurisdictional autonomy or representation. The Historic Center, in the borough of Cuauhtémoc, is the oldest part of the city (along with some other, formerly separate colonial towns such as Coyoacán and San Ángel), some of the buildings dating back to the 16th century. Other well-known central neighborhoods include Condesa, known for its Art Deco architecture and its restaurant scene; Colonia Roma, a beaux arts neighborhood and artistic and culinary hot-spot, the Zona Rosa, formerly the center of nightlife and restaurants, now reborn as the center of the LGBT and Korean-Mexican communities; and Tepito and La Lagunilla, known for their local working-class folklore and large flea markets. Santa María la Ribera and San Rafael are the latest neighborhoods of magnificent Porfiriato architecture seeing the first signs of gentrification.

West of the Historic Center (*Centro Histórico*) along Paseo de la Reforma are many of the city's wealthiest neighborhoods such as Polanco, Lomas de Chapultepec, Bosques de las Lomas, Santa Fe, and (in the State of Mexico) Interlomas, which are also the city's most important areas of class A office space, corporate headquarters, skyscrapers, and shopping malls. Nevertheless, some areas of lower-income *colonias* are right next to rich neighborhoods, particularly in the case of Santa Fe.

The south of the city is home to some other high-income neighborhoods such as Colonia del Valle and Jardines del Pedregal and the formerly separate colonial towns of Coyoacán, San Ángel, and San Jerónimo. Along Avenida Insurgentes from Paseo de la Reforma, near the center, south past the World

Trade Center and UNAM university toward the Periférico ring road, is another important corridor of corporate office space. The far-southern boroughs of Xochimilco and Tláhuac have a significant rural population, with Milpa Alta being entirely rural.

East of the center are mostly lower-income areas with some middle-class neighborhoods such as Jardín Balbuena. Urban sprawl continues further east for many miles into the State of Mexico, including Ciudad Nezahualcoyotl, now increasingly middle class but once full of informal settlements. Such slums are still found on the eastern edges of the metropolitan area in the Chalco area.

North of the Historic Center, Azcapotzalco and Gustavo A. Madero have important industrial centers and neighborhoods that range from established middle-class *colonias* such as Claveria and Lindavista to huge low-income housing areas that share hillsides with adjacent municipalities in the State of Mexico. In recent years, much of northern Mexico City's industry has moved to nearby municipalities in the State of Mexico. Northwest of Mexico City itself is Ciudad Satélite, a vast middle-class to upper-middle-class residential and business area.

The Human Development Index report of 2005 shows that there were three boroughs with a very high Human Development Index, 12 with a high HDI value (9 above .85), and one with a medium HDI value (almost high). Benito Juárez borough had the highest HDI of the country (0.9510) followed by Miguel Hidalgo, which came up fourth nationally with an HDI of (0.9189), and Coyoacán was fifth nationally, with an HDI of

(0.9169). Cuajimalpa (15th), Cuauhtémoc (23rd), and Azcapotzalco (25th) also had very high values of 0.8994, 0.8922, and 0.8915, respectively.

In contrast, the boroughs of Xochimilco (172nd), Tláhuac (177th), and Iztapalapa (183rd) presented the lowest HDI values of Mexico City, with values of 0.8481, 0.8473, and 0.8464, respectively, which are still in the global high-HDI range. The only borough that did not have a high HDI was that of rural Milpa Alta, which had a "medium" HDI of 0.7984, far below those of all the other boroughs (627th nationally, the rest being in the top 200). Mexico City's HDI for the 2005 report was 0.9012 (very high), and its 2010 value of 0.9225 (very high), or (by newer methodology) 0.8307, was Mexico's highest.

Metropolitan area

Greater Mexico City is formed by Mexico City, 60 municipalities from the State of Mexico and one from the state of Hidalgo. Greater Mexico City is the largest metropolitan area in Mexico and the area with the highest population density. As of 2020, 21,804,515 people live in this urban agglomeration, of which 9,209,944 live in Mexico City proper. In terms of population, the biggest municipalities that are part of Greater Mexico City (excluding Mexico City proper) are in the State of Mexico:

- Ecatepec de Morelos (pop. 1,645,352)
- Nezahualcóyotl (pop. 1,077,208)
- Naucalpan (pop. 834,434)
- Chimalhuacán (pop. 705,193)

- Tlalnepantla de Baz (pop. 672,202)

Approximately 75% (10 million) of the State of México's population live in municipalities that are part of Greater Mexico City.

Greater Mexico City was the fastest growing metropolitan area in the country until the late 1980s. Since then, and through a policy of decentralization in order to reduce the environmental pollutants of the growing conurbation, the annual rate of growth of the agglomeration has decreased, and it is lower than that of the other four largest metropolitan areas (namely Greater Guadalajara, Greater Monterrey, Greater Puebla and Greater Toluca) even though it is still positive.

The net migration rate of Mexico City proper from 1995 to 2000 was negative, which implies that residents are moving to the suburbs of the metropolitan area, or to other states of Mexico. In addition, some inner suburbs are losing population to outer suburbs, indicating the continuing expansion of Greater Mexico City.

Law enforcement

The Secretariat of Public Security of Mexico City (Secretaría de Seguridad Pública de la Ciudad de México – SSP) manages a combined force of over 90,000 officers in Mexico City. The SSP is charged with maintaining public order and safety in the heart of Mexico City. The historic district is also roamed by tourist police, aiming to orient and serve tourists. These horse-mounted agents dress in traditional uniforms.

The investigative Judicial Police of Mexico City (Policía Judicial de la Ciudad de México – PJCDMX) is organized under the Office of the Attorney General of Mexico City (the Procuraduría General de Justicia de la Ciudad de México). The PGJCDMX maintains 16 precincts (delegaciones) with an estimated 3,500 judicial police, 1,100 investigating agents for prosecuting attorneys (agentes del ministerio público), and nearly 1,000 criminology experts or specialists (peritos).

Between 2000 and 2004 an average of 478 crimes were reported each day in Mexico City; however, the actual crime rate is thought to be much higher "since most people are reluctant to report crime".

Under policies enacted by Mayor Marcelo Ebrard between 2009 and 2011, Mexico City underwent a major security upgrade with violent and petty crime rates both falling significantly despite the rise in violent crime in other parts of the country. Some of the policies enacted included the installation of 11,000 security cameras around the city and a very large expansion of the police force.

Mexico City has one of the world's highest police officer-to-resident ratios, with one uniformed officer per 100 citizens. Since 1997 the prison population has increased by more than 500%.

Political scientist Markus-Michael Müller argues that mostly informal street vendors are hit by these measures. He sees punishment "related to the growing politicization of security and crime issues and the resulting criminalization of the people living at the margins of urban society, in particular those who work in the city's informal economy."

Femicides and violence against women

In 2016, the incidence of femicides was 3.2 per 100 000 inhabitants, the national average being 4.2. A 2015 city government report found that two of three women over the age of 15 in the capital suffered some form of violence. In addition to street harassment, one of the places where women in Mexico City live in violence is public transport. Annually the Metro of Mexico City receives 300 complaints of sexual harassment.

While the violence against women in Mexico City is rising, there is still a large number of incidents of kidnappings and killings that go undetected and unreported due to the corruption in the police department.

Health

Mexico City is home to some of the best private hospitals in the country, including Hospital Ángeles, Hospital ABC and Médica Sur. The national public healthcare institution for private-sector employees, IMSS, has its largest facilities in Mexico City—including the National Medical Center and the La Raza Medical Center—and has an annual budget of over 6 billion pesos. The IMSS and other public health institutions, including the ISSSTE (Public Sector Employees' Social Security Institute) and the National Health Ministry (SSA) maintain large specialty facilities in the city. These include the National Institutes of Cardiology, Nutrition, Psychiatry, Oncology, Pediatrics, Rehabilitation, among others.

The World Bank has sponsored a project to curb air pollution through public transport improvements and the Mexican

government has started shutting down polluting factories. They have phased out diesel buses and mandated new emission controls on new cars; since 1993 all new cars must be fitted with a catalytic converter, which reduces the emissions released.

Trucks must use only liquefied petroleum gas (LPG). Also construction of an underground rail system was begun in 1968 in order to help curb air pollution problems and alleviate traffic congestion. It has over 201 km (125 mi) of track and carries over 5 million people every day. Fees are kept low to encourage use of the system and during rush hours the crush is so great, that authorities have reserved a special carriage specifically for women. Due to these initiatives and others, the air quality in Mexico City has begun to improve; it is cleaner than it was in 1991, when the air quality was declared to be a public health risk for 355 days of the year.

Economy

Mexico City is one of the most important economic hubs in Latin America. The city proper produces 15.8% of the country's gross domestic product. According to a study conducted by PwC, Mexico City had a GDP of \$390 billion, ranking it as the eighth richest city in the world and the richest in Latin America. Mexico City alone would rank as the 30th largest economy in the world. Mexico City is the greatest contributor to the country's industrial GDP (15.8%) and also the greatest contributor to the country's GDP in the service sector (25.3%). Due to the limited non-urbanized space at the south—most of which is protected through environmental laws—the contribution of Mexico City in agriculture is the smallest of all

federal entities in the country. Mexico City has one of the world's fastest-growing economies and its GDP is set to double from 2008 to 2020.

In 2002, Mexico City had a Human Development Index score of 0.915, identical to that of South Korea.

The top twelve percent of GDP per capita holders in the city had a mean disposable income of US\$98,517 in 2007. The high spending power of Mexico City inhabitants makes the city attractive for companies offering prestige and luxury goods.

The economic reforms of President Carlos Salinas de Gortari had a tremendous effect on the city, as a number of businesses, including banks and airlines, were privatized. He also signed the North American Free Trade Agreement (NAFTA). This led to decentralization and a shift in Mexico City's economic base, from manufacturing to services, as most factories moved away to either the State of Mexico, or more commonly to the northern border. By contrast, corporate office buildings set their base in the city.



Demographics

Historically, and since Pre-Columbian times, the Valley of Anahuac has been one of the most densely populated areas in Mexico. When the Federal District was created in 1824, the urban area of Mexico City extended approximately to the area

of today's Cuauhtémoc borough. At the beginning of the 20th century, the *élites* began migrating to the south and west and soon the small towns of Mixcoac and San Ángel were incorporated by the growing conurbation. According to the 1921 census, 54.78% of the city's population was considered Mestizo (Indigenous mixed with European), 22.79% considered European, and 18.74% considered Indigenous.

This was the last Mexican Census which asked people to self-identify with a heritage other than Amerindian. However, the census had the particularity that, unlike racial/ethnic census in other countries, it was focused in the perception of cultural heritage rather than in a racial perception, leading to a good number of white people to identify with "Mixed heritage" due to cultural influence. In 1921, Mexico City had less than one million inhabitants.

Up to the 1990s, the Federal District was the most populous federal entity in Mexico, but since then, its population has remained stable at around 8.7 million.

The growth of the city has extended beyond the limits of the city to 59 municipalities of the State of Mexico and 1 in the state of Hidalgo. With a population of approximately 19.8 million inhabitants (2008), it is one of the most populous conurbations in the world.

Nonetheless, the annual rate of growth of the Metropolitan Area of Mexico City is much lower than that of other large urban agglomerations in Mexico, a phenomenon most likely attributable to the environmental policy of decentralization. The net migration rate of Mexico City from 1995 to 2000 was negative.

Representing around 18.74% of the city's population, indigenous peoples from different areas of Mexico have migrated to the capital in search of better economic opportunities. Nahuatl, Otomi, Mixtec, Zapotec and Mazahua are the indigenous languages with the greatest number of speakers in Mexico City.

Nationality

Mexico City is also home to large communities of expatriates and immigrants from the rest of North America (U.S. and Canada), from South America (mainly from Argentina and Colombia, but also from Brazil, Chile, Uruguay and Venezuela), from Central America and the Caribbean (mainly from Cuba, Guatemala, El Salvador, Haiti and Honduras); from Europe (mainly from Spain, Germany and Switzerland, but also from Czech Republic, Hungary, France, Italy, Ireland, the Netherlands, Poland and Romania), from the Middle East (mainly from Egypt, Lebanon and Syria); and recently from Asia-Pacific (mainly from China, Japan, Pakistan, India and South Korea). Historically since the era of New Spain, many Filipinos settled in the city and have become integrated in Mexican society. While no official figures have been reported, population estimates of each of these communities are quite significant.

Mexico City is home to the largest population of U.S. Americans living outside the United States. Estimates are as high as 700,000 U.S. Americans living in Mexico City, while in 1999 the U.S. Bureau of Consular Affairs estimated over 440,000 Americans lived in the Mexico City Metropolitan Area.

Religion

The majority (82%) of the residents in Mexico City are Catholic, slightly lower than the 2010 census national percentage of 87%, making it the largest Christian denomination, though it has been decreasing over the last decades. Many other religions and philosophies are also practiced in the city: many different types of Protestant groups, different types of Jewish communities, Buddhist, Islamic and other spiritual and philosophical groups. There are also growing numbers of irreligious people, whether agnostic or atheist. The patron saint of Mexico City is Saint Philip of Jesus, a Mexican Catholic missionary who became one of the Twenty-six Martyrs of Japan.

The Roman Catholic Archdiocese of Mexico is the largest archdiocese in the world. There are two Catholic cathedrals in the city, the Mexico City Metropolitan Cathedral and the Iztapalapa Cathedral, and three former Catholic churches who are now the cathedrals of other rites, the San José de Gracia Cathedral (Anglican church), the Porta Coeli Cathedral (Melkite Greek Catholic church) and the Valvanera Cathedral (Maronite church).

Culture

Tourism

Mexico City is a destination for many foreign tourists. The Historic center of Mexico City (*Centro Histórico*) and the "floating gardens" of Xochimilco in the southern borough have been declared World Heritage Sites by UNESCO. Landmarks in

the Historic Center include the Plaza de la Constitución (Zócalo), the main central square with its epoch-contrasting Spanish-era Metropolitan Cathedral and National Palace, ancient Aztec temple ruins Templo Mayor ("Major Temple") and modern structures, all within a few steps of one another. (The Templo Mayor was discovered in 1978 while workers were digging to place underground electric cables).

The most recognizable icon of Mexico City is the golden Angel of Independence on the wide, elegant avenue Paseo de la Reforma, modeled by the order of the Emperor Maximilian of Mexico after the Champs-Élysées in Paris. This avenue was designed over the Americas' oldest known major roadway in the 19th century to connect the National Palace (seat of government) with the Castle of Chapultepec, the imperial residence. Today, this avenue is an important financial district in which the Mexican Stock Exchange and several corporate headquarters are located. Another important avenue is the Avenida de los Insurgentes, which extends 28.8 km (17.9 mi) and is one of the longest single avenues in the world.

Chapultepec Park houses the Chapultepec Castle, now a museum on a hill that overlooks the park and its numerous museums, monuments and the national zoo and the National Museum of Anthropology (which houses the Aztec Calendar Stone). Another piece of architecture is the Palacio de Bellas Artes, a white marble theater/museum whose weight is such that it has gradually been sinking into the soft ground below. Its construction began during the presidency of Porfirio Díaz and ended in 1934, after being interrupted by the Mexican Revolution in the 1920s. The Plaza de las Tres Culturas, in this square are located the College of Santa Cruz de Tlatelolco,

that is the first and oldest European school of higher learning in the Americas, and the archeological site of the city-state of Tlatelolco, and the shrine and Basilica of Our Lady of Guadalupe are also important sites. There is a double-decker bus, known as the "Turibus", that circles most of these sites, and has timed audio describing the sites in multiple languages as they are passed.

In addition, according to the Secretariat of Tourism, the city has about 170 museums—is among the top ten of cities in the world with highest number of museums—over 100 art galleries, and some 30 concert halls, all of which maintain a constant cultural activity during the whole year. It has either the third or fourth-highest number of theaters in the world after New York, London and perhaps Toronto. Many areas (e.g. Palacio Nacional and the National Institute of Cardiology) have murals painted by Diego Rivera. He and his wife Frida Kahlo lived in Coyoacán, where several of their homes, studios, and art collections are open to the public. The house where Leon Trotsky was initially granted asylum and finally murdered in 1940 is also in Coyoacán.

In addition, there are several *haciendas* that are now restaurants, such as the San Ángel Inn, the Hacienda de Tlalpan, Hacienda de Cortés and the Hacienda de los Morales.

Art

Having been capital of a vast pre-Hispanic empire, and also the capital of richest viceroyalty within the Spanish Empire (ruling over a vast territory in the Americas and Spanish West Indies), and, finally, the capital of the United Mexican States, Mexico

City has a rich history of artistic expression. Since the mesoamerican pre-Classical period the inhabitants of the settlements around Lake Texcoco produced many works of art and complex craftsmanship, some of which are today displayed at the world-renowned National Museum of Anthropology and the *Templo Mayor* museum. While many pieces of pottery and stone-engraving have survived, the great majority of the Amerindian iconography was destroyed during the Conquest of Mexico.

Much of the early colonial art stemmed from the codices (Aztec illustrated books), aiming to recover and preserve some Aztec and other Amerindian iconography and history. From then, artistic expressions in Mexico were mostly religious in theme. The Metropolitan Cathedral still displays works by Juan de Rojas, Juan Correa and an oil painting whose authorship has been attributed to Murillo. Secular works of art of this period include the equestrian sculpture of Charles IV of Spain, locally known as *El Caballito* ("The little horse"). This piece, in bronze, was the work of Manuel Tolsá and it has been placed at the Plaza Tolsá, in front of the Palacio de Minería (Mining Palace). Directly in front of this building is the Museo Nacional de Arte (Munal) (the National Museum of Art).

During the 19th century, an important producer of art was the Academia de San Carlos (San Carlos Art Academy), founded during colonial times, and which later became the Escuela Nacional de Artes Plásticas (the National School of Arts) including painting, sculpture and graphic design, one of UNAM's art schools. Many of the works produced by the students and faculty of that time are now displayed in the Museo Nacional de San Carlos (National Museum of San

Carlos). One of the students, José María Velasco, is considered one of the greatest Mexican landscape painters of the 19th century. Porfirio Díaz's regime sponsored arts, especially those that followed the French school. Popular arts in the form of cartoons and illustrations flourished, e.g. those of José Guadalupe Posada and Manuel Manilla. The permanent collection of the San Carlos Museum also includes paintings by European masters such as Rembrandt, Velázquez, Murillo, and Rubens.

After the Mexican Revolution, an avant-garde artistic movement originated in Mexico City: muralism. Many of the works of muralists José Clemente Orozco, David Alfaro Siqueiros and Diego Rivera are displayed in numerous buildings in the city, most notably at the National Palace and the Palacio de Bellas Artes. Frida Kahlo, wife of Rivera, with a strong nationalist expression, was also one of the most renowned of Mexican painters. Her house has become a museum that displays many of her works.

The former home of Rivera muse Dolores Olmedo houses the namesake museum. The facility is in Xochimilco borough in southern Mexico City and includes several buildings surrounded by sprawling manicured lawns. It houses a large collection of Rivera and Kahlo paintings and drawings, as well as living *Xoloizcuintles* (Mexican Hairless Dog). It also regularly hosts small but important temporary exhibits of classical and modern art (e.g. Venetian Masters and Contemporary New York artists).

During the 20th century, many artists immigrated to Mexico City from different regions of Mexico, such as Leopoldo

Méndez, an engraver from Veracruz, who supported the creation of the socialist Taller de la Gráfica Popular (Popular Graphics Workshop), designed to help blue-collar workers find a venue to express their art. Other painters came from abroad, such as Catalan painter Remedios Varo and other Spanish and Jewish exiles. It was in the second half of the 20th century that the artistic movement began to drift apart from the Revolutionary theme. José Luis Cuevas opted for a modernist style in contrast to the muralist movement associated with social politics.

Museums

Mexico City has numerous museums dedicated to art, including Mexican colonial, modern and contemporary art, and international art. The Museo Tamayo was opened in the mid-1980s to house the collection of international contemporary art donated by famed Mexican (born in the state of Oaxaca) painter Rufino Tamayo. The collection includes pieces by Picasso, Klee, Kandinsky, Warhol and many others, though most of the collection is stored while visiting exhibits are shown.

The Museo de Arte Moderno (Museum of Modern Art) is a repository of Mexican artists from the 20th century, including Rivera, Orozco, Siqueiros, Kahlo, Gerzso, Carrington, Tamayo, among others, and also regularly hosts temporary exhibits of international modern art. In southern Mexico City, the Museo Carrillo Gil (Carrillo Gil Museum) showcases avant-garde artists, as does the University Museum/Contemporary Art (Museo Universitario Arte Contemporáneo – or MUAC), designed by famed Mexican architect Teodoro González de León, inaugurated in late 2008.

The Museo Soumaya, named after the wife of Mexican magnate Carlos Slim, has the largest private collection of original Rodin sculptures outside Paris. It also has a large collection of Dalí sculptures, and recently began showing pieces in its masters collection including El Greco, Velázquez, Picasso and Canaletto. The museum inaugurated a new futuristic-design facility in 2011 just north of Polanco, while maintaining a smaller facility in Plaza de Loreto in southern Mexico City. The Colección Júmex is a contemporary art museum located on the sprawling grounds of the Jumex juice company in the northern industrial suburb of Ecatepec. It is said to have the largest private contemporary art collection in Latin America and hosts pieces from its permanent collection as well as traveling exhibits by leading contemporary artists.

The new Museo Júmex in Nuevo Polanco was slated to open in November 2013. The Museo de San Ildefonso, housed in the Antiguo Colegio de San Ildefonso in Mexico City's historic downtown district is a 17th-century colonnaded palace housing an art museum that regularly hosts world-class exhibits of Mexican and international art. Recent exhibits have included those on David LaChapelle, Antony Gormley and Ron Mueck. The National Museum of Art (Museo Nacional de Arte) is also located in a former palace in the historic center. It houses a large collection of pieces by all major Mexican artists of the last 400 years and also hosts visiting exhibits.

Jack Kerouac, the noted American author, spent extended periods of time in the city, and wrote his masterpiece volume of poetry *Mexico City Blues* there. Another American author, William S. Burroughs, also lived in the Colonia Roma neighborhood of the city for some time. It was here that he

accidentally shot his wife. Most of Mexico City's more than 150 museums can be visited from Tuesday to Sunday from 10 am to 5 pm, although some of them have extended schedules, such as the Museum of Anthropology and History, which is open to 7 pm. In addition to this, entrance to most museums are free on Sunday. In some cases a modest fee may be charged.

Another major addition to the city's museum scene is the Museum of Remembrance and Tolerance (Museo de la Memoria y Tolerancia), inaugurated in early 2011. The brainchild of two young Mexican women as a Holocaust museum, the idea morphed into a unique museum dedicated to showcasing all major historical events of discrimination and genocide. Permanent exhibits include those on the Holocaust and other large-scale atrocities. It also houses temporary exhibits; one on Tibet was inaugurated by the Dalai Lama in September 2011.

Music, theater and entertainment

Mexico City is home to a number of orchestras offering season programs. These include the Mexico City Philharmonic, which performs at the Sala Ollin Yoliztli; the National Symphony Orchestra, whose home base is the Palacio de Bellas Artes (Palace of the Fine Arts), a masterpiece of art nouveau and art decó styles; the Philharmonic Orchestra of the National Autonomous University of Mexico (OFUNAM), and the Minería Symphony Orchestra, both of which perform at the Sala Nezahualcóyotl, which was the first wrap-around concert hall of the world's western hemisphere when inaugurated in 1976. There are also many smaller ensembles that enrich the city's musical scene, including the Carlos Chávez Youth Symphony, the Cuarteto Latinoamericano, the New World Orchestra

(Orquesta del Nuevo Mundo), the National Polytechnical Symphony and the Bellas Artes Chamber Orchestra (Orquesta de Cámara de Bellas Artes).

The city is also a leading center of popular culture and music. There are a multitude of venues hosting Spanish and foreign-language performers. These include the 10,000-seat National Auditorium that regularly schedules the Spanish and English-language pop and rock artists, as well as many of the world's leading performing arts ensembles, the auditorium also broadcasts grand opera performances from New York's Metropolitan Opera on giant, high definition screens. In 2007 National Auditorium was selected world's best venue by multiple genre media.

Other sites for pop-artist performances include the 3,000-seat Teatro Metropolitan, the 15,000-seat Palacio de los Deportes, and the larger 50,000-seat Foro Sol Stadium, where popular international artists perform on a regular basis. The Cirque du Soleil has held several seasons at the Carpa Santa Fe, in the Santa Fe district in the western part of the city. There are numerous venues for smaller musical ensembles and solo performers. These include the Hard Rock Live, Bataclán, Foro Scotiabank, Lunario, Circo Volador and Voilá Acoustique. Recent additions include the 20,000-seat Arena Ciudad de México, the 3,000-seat Pepsi Center World Trade Center, and the 2,500-seat Auditorio Blackberry.

The Centro Nacional de las Artes (National Center for the Arts) has several venues for music, theater, dance. UNAM's main campus, also in the southern part of the city, is home to the Centro Cultural Universitario (the University Culture Center)

(CCU). The CCU also houses the National Library, the interactive *Universum*, Museo de las Ciencias, the Sala Nezahualcóyotl concert hall, several theaters and cinemas, and the new University Museum of Contemporary Art (MUAC). A branch of the National University's CCU cultural center was inaugurated in 2007 in the facilities of the former Ministry of Foreign Affairs, known as Tlatelolco, in north-central Mexico City.

The José Vasconcelos Library, a national library, is located on the grounds of the former Buenavista railroad station in the northern part of the city.

The *Papalote children's museum*, which houses the world's largest dome screen, is located in the wooded park of Chapultepec, near the *Museo Tecnológico*, and *La Feria* amusement park. The theme park *Six Flags México* (the largest amusement park in Latin America) is located in the Ajusco neighborhood, in Tlalpan borough, southern Mexico City. During the winter, the main square of the Zócalo is transformed into a gigantic ice skating rink, which is said to be the largest in the world behind that of Moscow's Red Square.

The Cineteca Nacional (the Mexican Film Library), near the Coyoacán suburb, shows a variety of films, and stages many film festivals, including the annual International Showcase, and many smaller ones ranging from Scandinavian and Uruguayan cinema, to Jewish and LGBT-themed films. Cinépolis and Cinemex, the two biggest film business chains, also have several film festivals throughout the year, with both national and international movies. Mexico City has a number

of IMAX theaters, providing residents and visitors access to films ranging from documentaries to blockbusters on these large screens.

Cuisine

Once considered plebeian fare, by the 19th century tacos had become a standard of Mexico City's cuisine. Furthermore, as authorities struggled to tax local taquerias, imposing licensing requirements and penalties, they recorded some details of the types of foods being served by these establishments. The most frequent reference was for *tacos de barbacoa*. Also mentioned are enchiladas, *tacos de minero* and *gorditas*, along with oyster shops and fried fish stands. There is evidence of some regional specialties being made available for recent migrants; at least two shops were known to serve *pozole*, a type of stew similar to hominy that is a staple of Guadalajara, Jalisco.

Mexico City is known for having some of the freshest fish and seafood in Mexico's interior. La Nueva Viga Market is the second largest seafood market in the world after the Tsukiji fish market in Japan.

Restaurants

Mexico City offers a variety of cuisines: restaurants specializing in the regional cuisines of Mexico's 31 states are available in the city, and the city also has several branches of internationally recognized restaurants. These include Paris' Au Pied de Cochon and Brasserie Lipp, Philippe (by Philippe Chow); Nobu, Quintonil, Morimoto; Pámpano, owned by Mexican-raised opera singer Plácido Domingo. There are

branches of Japanese restaurant Suntory, Italian restaurant Alfredo, as well as New York steakhouses Morton's and The Palm, and Monte Carlo's BeefBar.

Three of Lima's Haute restaurants, serving Peruvian cuisine, have locations in Mexico City: La Mar, Segundo Muelle and Astrid y Gastón.

For the 2019 list of World's 50 Best Restaurants as named by the British magazine *Restaurant*, Mexico City ranked 12th best with the Mexican avant-garde restaurant Pujol (owned by Mexican chef Enrique Olvera).

Also notable is the Basque-Mexican fusion restaurant Biko (run and co-owned by Bruno Oteiza and Mikel Alonso), which placed outside the list at 59th, but in previous years has ranked within the top 50. Other that has been placed on the list in 2019 is the restaurant Sud 777 at 58th place.

At the other end of the scale are working class pulque bars known as *pulquerías*, a challenge for tourists to locate and experience.

Transportation

Public transportation

Mexico City has many modes of public transportation, from the metro (subway) system, to suburban rail, light rail, regular buses, BRT (bus rapid transit), 'pesero' minibuses, and trolleybuses, to bike share.

Metro

Mexico City is served by the *Sistema de Transporte Colectivo*, a 225.9 km (140 mi) metro system, which is the largest in Latin America. The first portions were opened in 1969 and it has expanded to 12 lines with 195 stations.

The metro transports 4.4 million people every day. It is the 8th busiest metro system in the world, behind Tokyo (10.0 million), Beijing (9.3 million), Shanghai (7.8 million), Seoul (7.3 million),

Moscow (6.7 million), Guangzhou (6.2 million), and New York City (4.9 million). It is heavily subsidized, and has some of the lowest fares in the world, each trip costing 5.00 pesos (roughly US\$0.27) from 05:00 am to midnight. Several stations display pre-Columbian artifacts and architecture that were discovered during the metro's construction.

However, the metro covers less than half of the total urban area. The Metro stations are also differentiated by the use of icons and glyphs which were created for the illiterate, a unique system that has become iconic characteristic of Mexico City. Each icon was developed based on historical (characters, sites, pre-Hispanic motifs), linguistic, symbolic (glyphs) or geographic references. A complementary system of icons was used for the Metrobús (BRT) stops.

Suburban rail

A suburban rail system, the *Tren Suburbano* serves the metropolitan area, beyond the reach of the metro, with only

one line serving to municipalities such as Tlalnepantla and Cuautitlán Izcalli, but with future lines planned to serve e.g. Chalco and La Paz.

Peseros

Peseros are typically half-length passenger buses (known as *microbús*) that sit 22 passengers and stand up to 28. As of 2007, the approximately 28,000 peseros carried up to 60 percent of the city's passengers. In August 2016, Mayor Mancera announced that new pesero vehicle and concessions would be eliminated completely unless they were ecologically friendly vehicles, and in October 2011 the city's Secretary of Mobility Héctor Serrano states that by the end of the current administration (2018) there would no longer be any peseros/microbuses circulating at all, and that new full-sized buses would take over the routes.

Mid-size buses

In 2014, the city launched so-called "Bus Rapid Service", with mid-sized Mercedes-Benz Boxer buses carrying 75–85 passengers painted purple-on-white, replacing 'peseros' on certain groups of routes. Operation is a concession to the private firms (SAUSA, COTOBUSA, TREPSA) instead of to individual vehicle operators.

Full-sized buses

City agency Red de Transporte de Pasajeros (RTP), formerly M1, operates various networks of large buses including regular,

Ecobús, Circuito Bicentenario, Atenea, Express, school and night routes. In 2016, more bus routes were added to replace pesero routes.

In 2016, the SVBUS express bus service was launched, with limited stops and utilizing the city's toll roads on the second-level of the Periférico ring road and Supervía Poniente and connecting Toreo/Cuatro Caminos with Santa Fe, San Jerónimo Lídice and Tepepan near Xochimilco in the southeast.

Suburban buses also leave from the city's main intercity bus stations.

Bus rapid transit

The city's first bus rapid transit line, the **Metrobús**, began operation in June 2005, along Avenida Insurgentes. More and more lines opened and as of mid-2017 there are 6 routes with a 7th planned along Paseo de la Reforma to connect Santa Fe with the city center and points north.

As each line opened, the 'pesero' minibuses were removed from each route, in order to reduce pollution and commute times. As of mid-2017, there were 568 Metrobús buses.

In late 2016 they transported an average of 1.1 million passengers daily.

Mexibús provides 3 bus rapid transit lines connecting Metro Ciudad Azteca and Metro Pantitlán with Cuautitlán, Ecatepec and other suburban areas in the State of Mexico.

Trolleybus, light rail, streetcars

Electric transport other than the metro also exists, in the form of several Mexico City trolleybus routes and the Xochimilco Light Rail line, both of which are operated by Servicio de Transportes Eléctricos. The central area's last streetcar line (tramway, or *tranvía*) closed in 1979.

Roads and car transport

In the late 1970s many arterial roads were redesigned as *ejes viales*; high-volume one-way roads that cross, in theory, Mexico City proper from side to side. The *eje vial* network is based on a quasi-Cartesian grid, with the *ejes* themselves being called *Eje 1 Poniente*, *Eje Central*, and *Eje 1 Oriente*, for example, for the north–south roads, and *Eje 2 Sur* and *Eje 3 Norte*, for example, for east–west roads.

Ring roads are the Circuito Interior (inner ring), Anillo Periférico; the Circuito Exterior Mexiquense ("State of Mexico outer loop") toll road skirting the northeastern and eastern edges of the metropolitan area, the Chamapa-La Venta toll road skirting the northwestern edge, and the Arco Norte completely bypassing the metropolitan area in an arc from northwest (Atlacomulco) to north (Tula, Hidalgo) to east (Puebla). A second level (where tolls are charged) of the Periférico, colloquially called the *segundo piso* ("second floor"), was officially opened in 2012, with sections still being completed. The Viaducto Miguel Alemán crosses the city east–west from Observatorio to the airport. In 2013 the Supervía Poniente opened, a toll road linking the new Santa Fe business district with southwestern Mexico City.

There is an environmental program, called Hoy No Circula ("Today Does Not Run", or "One Day without a Car"), whereby vehicles that have not passed emissions testing are restricted from circulating on certain days according to the ending digit of their license plates; this in an attempt to cut down on pollution and traffic congestion. While in 2003, the program still restricted 40% of vehicles in the metropolitan area, with the adoption of stricter emissions standards in 2001 and 2006, in practice, these days most vehicles are exempt from the circulation restrictions as long as they pass regular emissions tests.

Parking

Street parking in urban neighborhoods is mostly controlled by the *franeleros* a.k.a. "*viene vienes*" (lit. "come on, come on"), who ask drivers for a fee to park. Double parking is common (with *franeleros* moving the cars as required), impeding on the available lanes for traffic to pass. In order to mitigate that and other problems and to raise revenue, 721 parking meters (as of October 2013), have been installed in the west-central neighborhoods Lomas de Chapultepec, Condesa, Roma, Polanco and Anzures, in operation from 8 AM to 8 PM on weekdays and charging a rate of 2 pesos per 15 minutes, with offenders' cars booted, costing about 500 pesos to remove. 30 percent of the monthly 16 million-peso (as of October 2013) income from the parking-meter system (named "ecoParq") is earmarked for neighborhood improvements. The granting of the license for all zones exclusively to a new company without experience in operating parking meters, Operadora de Estacionamientos Bicentenario, has generated controversy.

Cycling

The local government continuously strives for a reduction of massive traffic congestion, and has increased incentives for making a bicycle-friendly city.

This includes North America's second-largest bicycle sharing system, Ecobici, launched in 2010, in which registered residents can get bicycles for 45 minutes with a pre-paid subscription of 300 pesos a year.

There are, as of September 2013, 276 stations with 4,000 bicycles across an area stretching from the Historic center to Polanco, within 300 meters (980 feet) of one another and are fully automatic using a transponder based card. Bicycle-service users have access to several permanent Ciclovías (dedicated bike paths/lanes/streets), including ones along Paseo de la Reforma and Avenida Chapultepec as well as one running 59 kilometers (37 miles) from Polanco to Fierro del Toro, which is located south of Cumbres del Ajusco National Park, near the Morelos state line. The city's initiative is inspired by forward thinking examples, such as Denmark's Copenhagenization.

Intercity buses

The city has four major bus stations (North, South, Observatorio, TAPO), which comprise one of the world's largest transportation agglomerations, with bus service to many cities across the country and international connections. There are some intercity buses that leave directly from the Mexico City International Airport.

Airports

Mexico City is served by Mexico City International Airport (IATA Airport Code: MEX). This airport is Latin America's busiest, with daily flights to United States and Canada, Mexico, Central America and the Caribbean, South America, Europe and Asia. Aeroméxico (Skyteam) is based at this airport, and provide codeshare agreements with non-Mexican airlines that span the entire globe. The airport is also a hub for Volaris, Interjet and Aeromar.

In 2016, the airport handled almost 42 million passengers, about 3.3 million more than the year before. This traffic exceeds the capacity of the airport, which has historically centralized the majority of air traffic in the country.

An alternate option is Lic. Adolfo López Mateos International Airport (IATA Airport Code: TLC) in nearby Toluca, State of Mexico, although due to several airlines' decisions to terminate service to TLC, the airport has seen a passenger drop to just over 700,000 passengers in 2014 from over 2.1 million passengers just four years prior.

In the Mexico City airport, the government engaged in an extensive restructuring program that includes the addition of a new second terminal, which began operations in 2007, and the enlargement of four other airports (at the nearby cities of Toluca, Querétaro, Puebla and Cuernavaca) that, along with Mexico City's airport, comprise the *Grupo Aeroportuario del Valle de México*, distributing traffic to different regions in Mexico. The city of Pachuca will also provide additional expansion to central Mexico's airport network.

Education

In the Plaza de las Tres Culturas is the Colegio de Santa Cruz de Tlatelolco that is recognized for being the first and oldest European school of higher learning in the Americas and the first major school of interpreters and translators in the New World.

The National Autonomous University of Mexico (UNAM), located in Mexico City, is the largest university on the continent, with more than 300,000 students from all backgrounds. Three Nobel laureates, several Mexican entrepreneurs and most of Mexico's modern-day presidents are among its former students. UNAM conducts 50% of Mexico's scientific research and has presence all across the country with satellite campuses, observatories and research centers. UNAM ranked 74th in the Top 200 World University Ranking published by Times Higher Education (then called Times Higher Education Supplement) in 2006, making it the highest ranked Spanish-speaking university in the world. The sprawling main campus of the university, known as Ciudad Universitaria, was named a World Heritage Site by UNESCO in 2007.

The second largest higher-education institution is the National Polytechnic Institute (IPN), which includes among many other relevant centers the Centro de Investigación y de Estudios Avanzados (Cinvestav), where varied high-level scientific and technological research is done. Other major higher-education institutions in the city include the Metropolitan Autonomous University (UAM), the National School of Anthropology and History (ENAH), the Instituto Tecnológico Autónomo de México (ITAM), the Monterrey Institute of Technology and Higher

Education (3 campuses), the Universidad Panamericana (UP), the Universidad La Salle, the Universidad del Valle de México (UVM), the Universidad Anáhuac, Simón Bolívar University (USB), the Alliant International University, the Universidad Iberoamericana, El Colegio de México (Colmex), Escuela Libre de Derecho and the Centro de Investigación y Docencia Económica, (CIDE). In addition, the prestigious University of California maintains a campus known as "Casa de California" in the city. The Universidad Tecnológica de México is also in Mexico City.

Unlike those of Mexican states' schools, curricula of Mexico City's public schools is managed by the federal Secretary of Public Education.

The whole funding is allocated by the government of Mexico City (in some specific cases, such as El Colegio de México, funding comes from both the city's government and other public and private national and international entities). The city's public high school system is the *Instituto de Educación Media Superior de la Ciudad de México* (IEMS-DF).

A special case is that of El Colegio Nacional, created during the district's governmental period of Miguel Alemán Valdés to have, in Mexico, an institution similar to the College of France. The select and privileged group of Mexican scientists and artists belonging to this institution—membership is for life—include, among many, Mario Lavista, Ruy Pérez Tamayo, José Emilio Pacheco, Marcos Moshinsky (d.2009), Guillermo Soberón Acevedo. Members are obligated to publicly disclose their works through conferences and public events such as concerts and recitals.

Among its many public and private schools (K–13), the city offers multi-cultural, multi-lingual and international schools attended by Mexican and foreign students. Best known are the Colegio Alemán (German school with three main campuses), the Liceo Mexicano Japonés (Japanese), the Centro Cultural Coreano en México (Korean), the Lycée Franco-Mexicain (French), the American School, The Westhill Institute (American School), the Edron Academy and the Greengates School (British).

Shopping

Mexico City offers an immense and varied consumer retail market, ranging from basic foods to ultra high-end luxury goods. Consumers may buy in fixed indoor markets, in mobile markets (*tianguis*), from street vendors, from downtown shops in a street dedicated to a certain type of good, in convenience stores and traditional neighborhood stores, in modern supermarkets, in warehouse and membership stores and the shopping centers that they anchor, in department stores, in big-box stores, and in modern shopping malls.

In addition, "tianguis" or mobile markets set up shop on streets in many neighborhoods, depending on day of week. Sundays see the largest number of these markets.

Traditional markets

The city's main source of fresh produce is the Central de Abasto. This in itself is a self-contained mini-city in Iztapalapa borough covering an area equivalent to several dozen city blocks. The wholesale market supplies most of the city's

"mercados", supermarkets and restaurants, as well as people who come to buy the produce for themselves. Tons of fresh produce are trucked in from all over Mexico every day.

The principal fish market is known as La Nueva Viga, in the same complex as the Central de Abastos. The world-renowned market of Tepito occupies 25 blocks, and sells a variety of products.

A staple for consumers in the city is the omnipresent "mercado". Every major neighborhood in the city has its own borough-regulated market, often more than one. These are large well-established facilities offering most basic products, such as fresh produce and meat/poultry, dry goods, tortillerías, and many other services such as locksmiths, herbal medicine, hardware goods, sewing implements; and a multitude of stands offering freshly made, home-style cooking and drinks in the tradition of aguas frescas and atole.

Street vendors

Street vendors ply their trade from stalls in the *tianguis* as well as at non-officially controlled concentrations around metro stations and hospitals; at *plazas comerciales*, where vendors of a certain "theme" (e.g. stationery) are housed; originally these were organized to accommodate vendors formerly selling on the street; or simply from improvised stalls on a city sidewalk.

In addition, food and goods are sold from people walking with baskets, pushing carts, from bicycles or the backs of trucks, or simply from a tarp or cloth laid on the ground. In the center of the city informal street vendors are increasingly targeted by

laws and prosecution. The weekly San Felipe de Jesús Tianguis is reported to be the largest in Latin America.

Downtown shopping

The Historic Center of Mexico City is widely known for specialized, often low-cost retailers. Certain blocks or streets are dedicated to shops selling a certain type of merchandise, with areas dedicated to over 40 categories such as home appliances, lamps and electricals, closets and bathrooms, housewares, wedding dresses, jukeboxes, printing, office furniture and safes, books, photography, jewelry, and opticians. The main department stores are also represented downtown.

Traditional markets downtown include the La Merced Market; the Mercado de Jamaica specializes in fresh flowers, the Mercado de Sonora in the occult, and La Lagunilla in furniture.

Ethnic shopping areas are located in Chinatown, downtown along Calle Dolores, but Mexico City's Koreatown, or Pequeño Seúl, is located in the Zona Rosa.

Supermarkets and neighborhood stores

Large, modern chain supermarkets, hypermarkets and warehouse clubs including Soriana, Comercial Mexicana, Chedraui, Bodega Aurrerá, Walmart and Costco, are located across the city. Many anchor shopping centers that contain smaller shops, services, a food court and sometimes cinemas.

Small "mom-and-pop" corner stores ("abarroterías" or more colloquially as "changarros") abound in all neighborhoods, rich

and poor. These are small shops offering basics such as soft drinks, packaged snacks, canned goods and dairy products. Thousands of C-stores or corner stores, such as Oxxo, 7-Eleven and Extra are located throughout the city.

Parks and recreation

Chapultepec, the city's most iconic public park, has history back to the Aztec emperors who used the area as a retreat. It is south of Polanco district, and houses the Chapultepec Zoo the main city's zoo, several ponds and seven museums, including the National Museum of Anthropology.

Other iconic city parks include the Alameda Central historic center, a city park since colonial times and renovated in 2013; Parque México and Parque España in the hip Condesa district; Parque Hundido and *Parque de los Venados* in Colonia del Valle, and Parque Lincoln in Polanco. There are many smaller parks throughout the city. Most are small "squares" occupying two or three square blocks amid residential or commercial districts.

Several other larger parks such as the Bosque de Tlalpan and Viveros de Coyoacán, and in the east Alameda Oriente, offer many recreational activities.

Northwest of the city is a large ecological reserve, the Bosque de Aragón. In the southeast is the Xochimilco Ecological Park and Plant Market, a World Heritage site. West of Santa Fe district are the pine forests of the Desierto de los Leones National Park.

Amusement parks include Six Flags México, in Ajusco neighborhood which is the largest in Latin America. There are numerous seasonal fairs present in the city.

Mexico City has three zoos. Chapultepec Zoo, the San Juan de Aragon Zoo and Los Coyotes Zoo. Chapultepec Zoo is located in the first section of Chapultepec Park in the Miguel Hidalgo. It was opened in 1924. Visitors can see about 243 specimens of different species including kangaroos, giant panda, gorillas, caracal, hyena, hippos, jaguar, giraffe, lemur, lion, among others. Zoo San Juan de Aragon is near the San Juan de Aragon Park in the Gustavo A. Madero. In this zoo, opened in 1964, there are species that are in danger of extinction such as the jaguar and the Mexican wolf. Other guests are the golden eagle, pronghorn, bighorn sheep, caracara, zebras, African elephant, macaw, hippo, among others. Zoo Los Coyotes is a 27.68-acre (11.2 ha) zoo located south of Mexico City in the Coyoacan. It was inaugurated on 2 February 1999. It has more than 301 specimens of 51 species of wild native or endemic fauna from the area, featuring eagles, ajolotes, coyotes, macaws, bobcats, Mexican wolves, raccoons, mountain lions, teporingos, foxes, white-tailed deer.

Sports

- Association football is the country's most popular and most televised franchized sport. Its important venues in Mexico City include the Azteca Stadium, home to the Mexico national football team and giants América, which can seat 91,653 fans, making it the biggest stadium in Latin America. The Olympic Stadium in Ciudad Universitaria is home to the

football club giants Universidad Nacional, with a seating capacity of over 52,000. The Estadio Azul, which seats 33,042 fans, is near the World Trade Center Mexico City in the Nochebuena neighborhood, and is home to the giants Cruz Azul. The three teams are based in Mexico City and play in the First Division; they are also part, with Guadalajara-based giants Club Deportivo Guadalajara, of Mexico's traditional "Big Four" (though recent years have tended to erode the teams' leading status at least in standings). The country hosted the FIFA World Cup in 1970 and 1986, and Azteca Stadium is the first stadium in World Cup history to host the final twice. Mexico City is the first Latin American city to host the Olympic Games, having held the Summer Olympics in 1968, winning bids against Buenos Aires, Lyon and Detroit. The city hosted the 1955 and 1975 Pan American Games, the last after Santiago and São Paulo withdrew. The ICF Flatwater Racing World Championships were hosted here in 1974 and 1994. Lucha libre is a Mexican style of wrestling, and is one of the more popular sports throughout the country. The main venues in the city are Arena México and Arena Coliseo.

The Autódromo Hermanos Rodríguez is the main venue for motorsport, and hosts the Formula 1 Mexican Grand Prix since its return to the sport in 2015, the event being held in the past from 1962 to 1970, and again from 1986 to 1992. From 1980 to 1981 and again from 2002 to 2007, the circuit hosted the Champ Car World Series Gran Premio de México. Beginning in 2005, the NASCAR Nationwide Series ran the Telcel-Motorola

México 200. 2005 also marked the first running of the Mexico City 250 by the Grand-Am Rolex Sports Car Series. Both races were removed from their series' schedules for 2009.

Baseball is another sport played professionally in the city. Mexico City is home of the Mexico City Red Devils of the Mexican League, which is considered a Triple-A league by Major League Baseball. The Devils play their home games at Estadio Alfredo Harp Helú designed by international Mexican-American architect FGP Atelier Founder Francisco Gonzalez Pulido in collaboration with local architect Taller ADG. Mexico City has some 10 Little Leagues for young baseball players.

In 2005, Mexico City became the first city to host an NFL regular season game outside of the United States, at the Azteca Stadium. The crowd of 103,467 people attending this game was the largest ever for a regular season game in NFL history until 2009. The city has also hosted several NBA pre-season games and has hosted international basketball's FIBA Americas Championship, along with north-of-the-border Major League Baseball exhibition games at Foro Sol.

In 2017, NBA commissioner Adam Silver expressed interest in placing an NBA G League expansion team in Mexico City as early as 2018. This came to fruition on 12 December 2019 when commissioner Silver announced at a press conference in Mexico City Arena that LNBP team, Capitanes de Ciudad de México will be joining the G League in the 2020–21 season on a five-year agreement.

Other sports facilities in Mexico City are the Palacio de los Deportes indoor arena, Francisco Márquez Olympic Swimming Pool, the Hipódromo de Las Américas, the Agustin Melgar

Olympic Velodrome, and venues for equestrianism and horse racing, ice hockey, rugby, American-style football, baseball, and basketball.

Bullfighting takes place every Sunday during bullfighting season at the 50,000-seat Plaza México, the world's largest bullring.

Mexico City's golf courses have hosted Women's LPGA action, and two Men's Golf World Cups. Courses throughout the city are available as private as well as public venues.

Media

Mexico City is Latin America's leading center for the television, music and film industries. It is also Mexico's most important for the printed media and book publishing industries. Dozens of daily newspapers are published, including *El Universal*, *Excélsior*, *Reforma* and *La Jornada*. Other major papers include *Milenio*, *Crónica*, *El Economista* and *El Financiero*. Leading magazines include *Expansión*, *Proceso*, *Poder*, as well as dozens of entertainment publications such as *Vanidades*, *Quién*, *Chilango*, *TV Notas*, and local editions of *Vogue*, *GQ*, and *Architectural Digest*.

It is also a leading center of the advertizing industry. Most international ad firms have offices in the city, including Grey, JWT, Leo Burnett, Euro RSCG, BBDO, Ogilvy, Saatchi & Saatchi, and McCann Erickson. Many local firms also compete in the sector, including Alazraki, Olabuenaga/Chemistri, Terán, Augusto Elías, and Clemente Cámara, among others.

There are 60 radio stations operating in the city and many local community radio transmission networks.

The two largest media companies in the Spanish-speaking world, Televisa and TV Azteca, are headquartered in Mexico City. Other local television channels include:

XHDF 1 (Azteca Uno), XEW 2 (Televisa W), XHCTMX 3, XHTV 4, XHGC 5, XHTDMX 6, XHIMT 7, XEQ 9, XEIPN 11, XHUNAM 20, XHCDM 21, XEIMT 22, XHTRES 28, XHTVM 40 and XHHCU 45.

Nicknames and mottos

Mexico City was traditionally known as *La Ciudad de los Palacios* ("the City of the Palaces"), a nickname attributed to Baron Alexander von Humboldt when visiting the city in the 19th century, who, sending a letter back to Europe, said Mexico City could rival any major city in Europe. But it was English politician Charles Latrobe who really penned the following: "... look at their works: the moles, aqueducts, churches, roads—and the luxurious *City of Palaces* which has risen from the clay-built ruins of Tenochtitlan...", on page 84 of the Letter V of *The Rambler in Mexico*.

During all the colony the city's motto was "Muy Noble e Insigne, Muy Leal e Imperial" (Very Noble and Distinguished, Very Loyal and Imperial).

During Andrés López Obrador's administration a political slogan was introduced: *la Ciudad de la Esperanza* ("The City of Hope"). This motto was quickly adopted as a city nickname but has faded since the new motto, *Capital en Movimiento* ("Capital

in Movement"), was adopted by the administration headed by Marcelo Ebrard, though the latter is not treated as often as a nickname in media. Since 2013, to refer to the City particularly in relation to government campaigns, the abbreviation **CDMX** has been used (from Ciudad de México), prior to this but recently, the abbreviation was "the DF" (from Distrito Federal de México).

The city is colloquially known as *Chilangolandia* after the locals' nickname *chilangos*. Chilango is used pejoratively by people living outside Mexico City to "connote a loud, arrogant, ill-mannered, loutish person". For their part those living in Mexico City designate insultingly those who live elsewhere as living in *la provincia* ("the provinces", the periphery) and many proudly embrace the term chilango. Residents of Mexico City are more recently called *defeños* (deriving from the postal abbreviation of the Federal District in Spanish: D.F., which is read "De-Efe"). They are formally called *capitalinos* (in reference to the city being the capital of the country), but "[p]erhaps because capitalino is the more polite, specific, and correct word, it is almost never utilized".