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1492 and Before

Before Europeans

In 1492, Europeans believed that they had "discovered" a "new world" when Italian explorer Cristóbal Colón (later anglicized into Christopher Columbus), sailing under the Spanish flag, returned from his first voyage. Native Americans would have dismissed both notions, first by noting that they had long known of the two continents that would eventually be known as the Americas and, therefore, they did not need to be discovered. They would have also refuted the idea that their lands constituted "a new world." They and their ancestors had lived here for several millennia; if anything, Colón merely managed to connect two old worlds. Native Americans claimed that they had always been here, and like peoples all over the world, had their own explanations as to how the world began and as to where their ancestors came from. On the eve of contact with Europeans, over 500 different Native American communities, bands, and tribes, who spoke approximately 350 different languages, called North America home. With such a diversity of languages and communities, it should not be surprising that native peoples also had varying sets of beliefs concerning their origins. The creation stories of Native Americans often reflected the environments in which they lived.

"Times Are Altered with Us": American Indians from First Contact to the New Republic, First Edition. Roger M. Carpenter.

A common theme among native peoples of both the Northeastern and Southeastern Woodlands is the notion that at one time the earth consisted of nothing but water. The Iroquoian peoples of the Northeast, for example, believe they are descended from Aataentsic, a woman who fell from the sky into this world, which at the time consisted of nothing but one vast ocean. One day in the sky world, a tree fell down. Aataentsic looked through the hole, astonished to see a world composed entirely of water, miles below her own. As she gazed through the hole, she accidentally slipped and fell through it. Despite frantically clawing at the sides of the hole for something to hang on to, she plunged downward through space, toward the world made of water. Seeing her fall from the sky, the aquatic animals inhabiting the water world – the beaver, otter, and muskrat – decided they must do something to save her. They asked the geese for help, who caught Aataentsic and placed her on the back of an enormous turtle. Aataentsic began to weep, and the aquatic animals asked her what was wrong. She explained that she could not survive without land. The aquatic animals dived to the bottom of the ocean, found a bit of mud, and gave it to Aataentsic, who placed it on the back of the turtle and watched as it expanded and became Turtle Island, or as we call it, North America. Pregnant when she fell into this world, Aataentsic soon gave birth to a daughter, who years later bore male twins. Continually at odds with one another, the twins often fought each other in the womb. When it came time to be born, one of the twins entered the world in the usual way, encouraging his brother to follow him. But the other twin ignored his sibling's advice and introduced death into the world when he entered the world via his mother's armpit. The twin who had been born in the usual way set about the business of improving the world, creating edible plants and rivers that ran both ways, so that people would find travel easier. Lacking his brother's ability to create, the twin who killed his mother attempted to spoil his brother's work, adding thorns and briars to plants and changing the rivers so that they ran only one way. In short, one twin made everything that is good in the world, while his brother did all he could to make the world unpleasant. In one of the final conflicts between the two siblings, the malevolent twin locked all of the animals in an underground cave. Humankind, lacking a source of meat, suffered because of this. Discovering what his brother had done, the benevolent twin freed the animals, setting up an epic battle between the two. The good twin beat his evil brother, striking him repeatedly with a set of buck's antlers. The

blood the evil twin shed as he fled from his brother transformed into flint, which Iroquois peoples used to make tools and weapons.

The Cherokee likewise believed that the earth at one time consisted wholly of water. In the beginning, all of the world's animals lived in a stone vault in the sky. As the animals reproduced, the vault became crowded. The animals sent a water beetle to search for another place to live. The beetle found this world, but could only skip along its watery surface. Diving underwater, the beetle found some mud and placed it on the surface, where it magically began to grow and became land. Eager to leave the stone sky vault, the animals waited impatiently as their sodden and muddy new world dried. Each day, the animals sent one of the birds to fly over the earth to examine closely whether or not it had dried enough so that they could live on its surface. One day the animals sent the vulture to scout the drying earth, but he flew too low and his large wings inadvertently carved into its smooth damp surface, creating the hills and valleys of the Cherokee country of northern Georgia, the western Carolinas, and Tennessee.

Peoples that lived in other regions, such as the Pacific Northwest, had creation stories that reflected their environment as well. A common creation story of the Pacific Northwest begins with a beach pea (an aquatic plant) that, much like other beach peas, washed up on shore. But unlike other beach peas, this one contained a man, who snapped into consciousness. In this first moment of awareness, he realized he was in a place that was dark, clammy, and cramped. Stretching his arms and legs, the man burst out of the beach pea and stood on the beach, blinking as his eyes adjusted to the sunlight. As he looked around, he saw only earth, sky, and ocean. After a while, the man saw something flying in the sky. The object drew closer, circled the man, and landed several feet from him. The object turned out to be the Raven, who stood gazing at the man for some time. The Raven finally spoke and asked the man "what are you?" The man replied that he did not know. The Raven then asked the man where he came from and the man gestured toward the shattered remains of the beach pea. The Raven expressed surprise, indicating that he created all the man saw, including the beach pea, but he did not expect the man to burst out of it. Raven asked the man how he felt and the man gestured toward his stomach, indicating he felt hungry. The Raven showed the man how to get food and created animals for him to hunt. In time, he realized the man felt lonely, and made him a mate.

Remarkably common throughout Native North America, the flooded world motif reflected a blend of traditional creation stories and the post-contact influence of Christian missionaries. Whereas the western religious tradition relies on an all-powerful being who creates all that exists, deities – or perhaps near deities – in the Native American spiritual convention are powerful, but usually not all-powerful – nor are all wise. In the Cheyenne creation story, a near-omnipotent being creates light, sky, air, water, and the creatures that live in water and sky. But he cannot create land until he secures help from birds who dive under water and find a little bit of mud which he uses to make earth. Native deities and powerful spiritual beings can also be fallible, and can sometimes be the subject of mirth in stories that emphasize their all too human failures and foibles. For example, Nanabush, the Great Hare of the Anishinabeg people, helped create the world, and could vanquish powerful enemies. Yet he also managed to be entertaining (or offensive depending on your perspective), such as when he amused himself after learning how to propel himself through the air with his own flatulence.

European explorers and missionaries often noted that the native peoples of the Americas lacked literacy, and concluded that this somehow deprived them of the ability to record the past, and that they therefore must lack history. But all peoples, logically speaking, have a past and preserve some knowledge of it in some fashion. Europeans did not seem to realize that while native peoples did not record events in writing, they developed their own ways of remembering their past. The peoples of the Great Plains recorded important events in winter counts, which consisted of pictographs painted on animal hides. Often begun by one person and continued by another, some of these winter counts recorded more than a century's worth of events. Peoples of the Northeastern Woodlands made belts or used strings of *sewan* (wampum) made from whelk shells that served as mnemonic devices. In the hands of individuals who knew what the strings and designs woven into the belts meant, the past could be preserved. Other native peoples used petroglyphs, carving their history into rock. Even today, in parts of the Southwest, the Great Plains, and western Canada, petroglyphs can still be seen (if not always wholly understood). But the most important element that enabled native peoples to preserve their past came through the development of strong oral traditions. In this manner, native peoples recorded histories, legends, and stories, repeating them and allowing them to be passed down to younger generations. While

many of these histories are still told, or were later preserved in writing by missionaries and scholars, many of these stories – and the histories that accompanied them – disappeared forever when Cristóbal Colón unwittingly initiated a 400-year campaign in October of 1492 that would see Europeans and their descendants invade the Americas.

Invasions of America

Americans often think of Cristóbal Colón as the "discoverer" of the Americas. The obvious problem with this formulation is that the Americas had already been discovered; both continents already hosted large populations of native peoples. But even the notion that Colón was the first European to set foot in the Americas is mistaken. Five centuries earlier, in approximately the year 1000, the Norse, reputedly led by Leif Ericson, explored Baffin Island and Labrador, and established a small colony at the northern tip of Newfoundland. According to Norse oral tradition, the colonists frequently traded and fought with the natives, whom they referred to as *Skraelings* ("ugly wretches"). Harassed and under sporadic attack by the natives, and far from their other colonies in Greenland, the Norse abandoned the "new-found land" after only a decade. For centuries thereafter, other Europeans and many Americans regarded the story of *Vinland,* as the Norse termed it, as a myth. That changed in the 1960s, when Canadian archaeologists unearthed the remains of a Norse settlement at L'Anse Aux Meadows in Newfoundland.

We do not know what Cristóbal Colón knew, or did not know, about prior Norse exploration to the west, when on the evening of October 12, 1492, he sighted a dim light on the horizon as his small fleet of three ships made their way west. The next day, Colón recorded the first contact between Europeans and the native peoples of what would become known as the Americas. Portraying the Taino people he met as children of nature, Colón described them as "simple-minded and handsomely-formed," and decided they knew nothing about war when one Indian – seeing steel implements for the first time – inadvertently cut himself when he handled a Spaniard's sword blade. Colón did not correct himself, even after noting that several Taino men evidently knew something about violence, since they bore the "marks of wounds on their bodies."

Implying that he could somehow understand the Taino language, Colón emphasized what he regarded as their submissiveness, noting they were "very docile" and "should be good servants." Having a messianic bent – Colón's first name meant "Christ Bearer" – he also thought the Indians "would easily be made Christians, as it appeared to me that they had no religion." While only initial impressions, Colón's notions about the New World's natives would dominate European thinking through the next 300 years and beyond, a period during which explorers, missionaries, and colonists embarked on the unsettling and resettling of the American continents. Subsequent European explorers made observations similar to Colón's.

Historian Daniel K. Richter conceptualized the native view of the invasion of their continent by Europeans as one in which they "faced east." Richter's formulation works as a reversal of the dominant narrative of American history that depicts Europeans and Americans as relentlessly pushing west and wresting control of the continent from native peoples – that is, when native peoples are even included as part of the narrative. As late as the mid-twentieth century, histories of the settlement of the Americas treated native peoples almost as bystanders in the process of European colonization. But the notion that the European invasion of the Americas came from the east misses a key point; the intrusion actually came from all sides. Algonquin peoples living along the Atlantic coast did indeed face east as Europeans landed on their shores, but the native peoples of the Florida peninsula and the Gulf Coast saw the European invasion surge at them not only from the east, but from the west and south as well. The native peoples in the Southwest saw Spaniards invade their homelands from the south while in the sixteenth century, California's native peoples faced west, and watched abortive Spanish and English invasions emerge from, then recede back into the surf of the Pacific. Two centuries later, the Spanish staged a successful overland invasion of the region from the south and would remain. The peoples of the Pacific Northwest – to some degree more fortunate since they were among the last to have contacts with Europeans – saw the invasion come at them from both the north and the south. Russian fur traders crossed the Bering Strait in the eighteenth century, gained a toehold in Alaska, and then moved south. Spanish traders, fearing Russian influence, moved northward from Alta California to counter them, only to later be displaced by the British.

Figure 1.1 A highly romanticized depiction of Cristóbal Colón's landing on Hispaniola. Native people greet him with what appear to be gold and gems. Spanish sailors erect a cross in the background, carrying out the first of numerous "ceremonies of possession" that Europeans would perform over the next two centuries. This illustration also highlights one of the key differences that Colón noted in his writings. He and his fellow Spaniards are fully clothed, while the Indians are almost naked. "El Almirante Christoval Colon descubre la Isla Española" by Pieter Balthazar Bouttats. Library of Congress Rare Book and Special Collections Division LC-USZ62-8390.

Rewriting "History"

European narratives often characterize contact with the Americas as a "discovery." Native peoples, however, knew better. They had lived here for centuries. Exactly how long ago their ancestors arrived in the Americas is a matter of some dispute. Since native peoples lacked writing, Europeans "helpfully" fabricated histories for them. Fascinated with this previously unknown continent and its peoples, Europeans concocted all sorts of fanciful theories as to the origins of Native Americans. One theory held that the ancestors of Native Americans escaped the lost continent of Atlantis. Some English colonists (and some nineteenth-century Americans as well) claimed they could hear traces of the Welsh language in native peoples' speech and argued that they must be the descendants of a lost western expedition led by a Welsh prince named Modoc in the twelfth century. One colonist went so far as to claim that he could speak Welsh and be perfectly understood by Indians. The most popular – and perhaps persistent – theory regarding the origins of native peoples drew on biblical texts, and argued that they must be descended from the 10 lost tribes of Israel. Scholars and missionaries claimed that many Amerindian languages contained a variety of Hebrew words. William Penn, the founder of the Pennsylvania colony, concurred with the 10 lost tribes of Israel theory, noting that "Their Eye is little and black, not unlike a straight-look't Jew." Penn also believed God imposed an extraordinary punishment on the 10 lost tribes by banishing them to America. Other Europeans, who had far more experience among native peoples, also argued for a supposed connection to the biblical Israelites. English trader James Adair, who spent four decades among the native peoples of the American Southeast, claimed in his 1775 book, *History of the American Indians*, that the languages, customs, and religious practices of Native Americans had many similarities to Jewish practices. As late as the 1860s, American missionaries still made the argument that native peoples had to be descended from the biblical lost tribes.

The Bering Strait Theory

Anthropologists and archaeologists, however, have other explanations as to the origins of native peoples. One of the earliest examples can be found in the *Natural and Moral History of the Indies* published in 1590 by Jesuit missionary and scholar José de Acosta. Acosta

thought Native Americans resembled the peoples of Asia, and he speculated that their ancestors must have originated there. Acosta had no way of knowing about the existence of the Bering Strait (Vitus Bering, a Danish navigator in the employ of the Russians, would not discover it until the eighteenth century) but he imagined that somewhere far to the north, North America and Asia must be connected to each other. While Acosta's suppositions could hardly be called a theory – they are more along the lines of a wild guess – it is perhaps the earliest expression of what later became known as the Bering Strait theory, which is the most commonly accepted explanation among archaeologists and anthropologists for the presence of humans in the western hemisphere. A key support to this theory is that unlike Africa, Asia, and Europe, the remains of archaic humanoids have never been found in the Americas.

Employing archaeological evidence, scientists assert that approximately 20,000 to 30,000 years ago, during the latter part of the Ice Age, the ancestors of Native Americans migrated from Asia into North America. With a good portion of the world's ocean water locked up in ice, global sea levels dropped. Where the Bering Strait exists today, scientists believe Alaska and Siberia may have been connected by land. Even today, at their closest points, only 55 miles of water separate Alaska and Siberia, a fact that caused some consternation for both the United States and the Soviet Union during the twentieth-century's Cold War. Using this land bridge, as some have termed it, and perhaps later their own sea craft, Neolithic hunters followed large game animals such as mastodons and giant sloths, and unwittingly crossed into, and became the first human inhabitants of, North America. Over thousands of years, their ancestors coalesced into bands, tribes, communities, and nations – an estimated 500 in North America alone – that occupied all of the Americas, from the Arctic to the Straits of Magellan.

In all likelihood, the animals that populated North America did not initially fear the Neolithic hunters from Asia; they simply had no prior experience with human beings. In time, of course, they did learn to fear them. Ice Age North America supported an abundance of megafauna. At sites where Indian hunters butchered their kill, archaeologists have found the remains of mastodons and mammoths that weighed perhaps 10 tons. They have also found the remains of giant beavers, some of which reached a length of seven feet, and bison with horns that spanned six feet. Remains of other long extinct

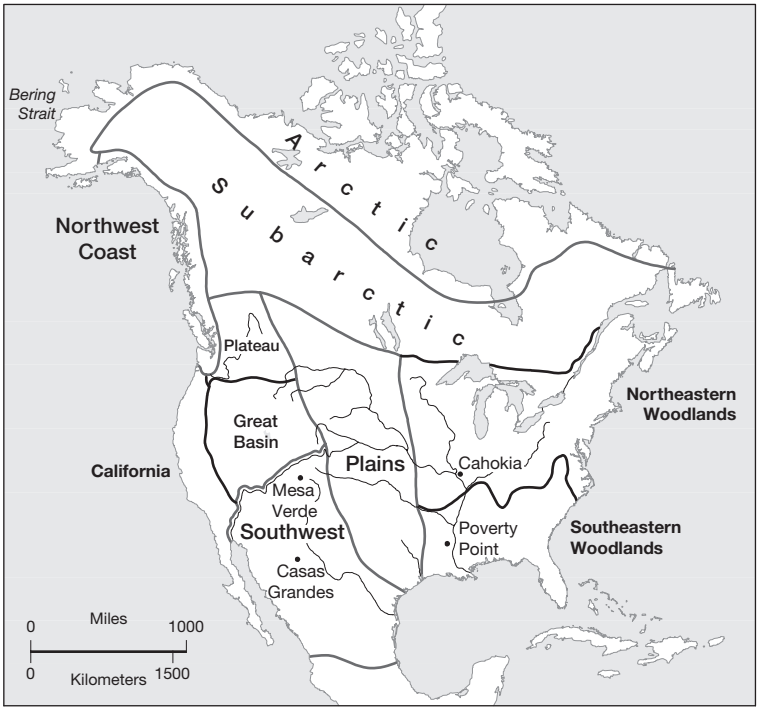
species, such as single-hump camels, giant capybaras, and tapirs that weighed in at perhaps a quarter ton have also been discovered. Wherever there are large herbivores, there also tend to be large carnivores. All of these animals had to be wary of the predatory creatures that also populated Ice Age America. The dire wolf, a distant relative of the modern grey wolf, could weigh in at close to 250 pounds, while short-faced bears reached 1,800 pounds. Several different species of large saber-toothed cats also preyed on Ice Age herbivores – and perhaps each other in times of scarcity.

Scholars have speculated that overhunting by the newly arrived humans may have played a big part in the extinction of many of North America's largest animal species, but one must also recognize that about 10,000 years ago the climate changed drastically, and in a fairly short period of time. As the glaciers receded and the climate warmed, many of the plant species that the giant herbivores relied on disappeared, which in turn contributed to the decline of the animals that preyed on them. While archaeological remains indicate that Paleo-Indians did kill lots of animals and were extremely efficient hunters, in all likelihood they cannot be blamed outright for the extinction of all of North America's megafuana. There simply were not that many humans in North America at the time, and they would have had to have been everywhere at once. As the large game animals disappeared, the human hunters adapted and sought smaller prey. They adapted to the swiftly changing environment, and learned to use the varied ecosystems of North America to their advantage.

Culture Areas

To make the study of North America's native peoples simpler, anthropologists generally divide the continent into culture regions that closely coincide with the environment of each area. While there may be some variation, the most common culture areas referenced are the Northeastern and Southeastern Woodlands (which are collectively referred to as the Eastern Woodlands), the Southwest, California, the Pacific Northwest Coast, the Great Plains, and the Great Basin. Even within a given culture area, however, there can be a great deal of environmental diversity. For example, the Northeastern Woodlands culture area extends as far north as the mouth of the St Lawrence

River and some formulations dip as far south as into what is now central Tennessee (depending on the map one is consulting). The Great Plains stretches from southern Alberta and Saskatchewan in the north and brushes up against the Rio Grande River in the south. Obviously, this means that a great deal of ecological diversity existed within each of these culture areas. The different areas do, however, share some defining traits. The dominant (and obvious) trait of the Great Plains, for example, is their flatness. Likewise, the Eastern Woodlands consisted of woods, rivers, and lakes. Yet it is obvious that a native person living in what is now Saskatchewan experienced a very different environment from that experienced by a native person living in what is now central Texas. Thanks to the environmental diversity of the Northeastern Woodlands region, a native person in northern Maine had to live differently from a native person in what is now Tennessee.



Map 1.1 Major geographic regions of North America

The Development of Maize

The development of New World agriculture may have been the most important occurrence in the pre-contact period. About 3,500 years ago, peoples in Central America began to experiment with teosinte grasses, which eventually led to the development of maize, the most important of the America's – one of the most important of the world's – food crops. Maize began to appear in the American Southwest and Midwest as early as 1500 BC, but most peoples shifted from hunting and gathering to agriculture only gradually, and some not at all. By about 600 BC, native peoples had developed strains of maize that thrived in the lands north of the Rio Grande. Planting mixed fields of maize, beans, and squash – what came to be known as the "three sisters" among peoples of the Eastern Woodlands – Native Americans developed a productive and remarkably efficient agricultural process. While maize tends to deplete nitrogen from the soil, the beans counter this by fixing nitrogen in place, thus preserving the nutrient for use by both the maize and the squash plants. The maize stalks become beanpoles, while the sprawling growth pattern of the squash and its large leaves shielded the soil from the sun, holding in moisture for the benefit of all three plants and also suppressing the growth of weeds.

Maize cultivation spread farther north over the ensuing centuries, and peoples in the Northeastern Woodlands developed strains that could ripen in as little as 120 days. Native peoples of the California and Northwest Pacific coast culture areas practiced little agriculture, primarily because they did not need to do so. In both regions, native peoples accessed the food resources of the sea, such as fish and marine mammals such as seals. In the Pacific Northwest, native peoples constructed giant canoes used in the hunting of whales. Both regions also yielded a bounty of natural plant foods, making the adoption of agriculture, with the exception of tobacco for ceremonial or religious purposes, unnecessary.

The Southwest

In the Southwest, the Hohokam people, ancestors of present-day Pima and Papago peoples, began constructing the first of what today we call "pueblos." (*Pueblo* is the Spanish word for town; the Spanish hung this moniker on the settled native peoples of the Southwest

because they viewed them as more "civilized" than their nomadic neighbors, such as the Apaches and the Navajos). Living in a desert environment, the Hohokam constructed an extensive and elaborate irrigation network. Their success in irrigating their fields facilitated the building of their pueblos; the knowledge that they now had a permanent, reliable food source led to their constructing permanent housing. While irrigation made it possible for them to farm in the desert, the Hohokam may have unwittingly tapped water sources with a high saline content. In time, this would have made their fields infertile, which may have contributed to their disappearance in about the twelfth century.

The Anasazi (Navajo for "the old ones") constructed their first pueblos in the tenth century in Chaco Canyon, near what is now called the "Four Corners" (where the corners of the states of Arizona, Colorado, New Mexico, and Utah meet). These immense structures were the largest examples of apartment-style housing in North America until the construction of tenement housing in New York in the nineteenth century. Primarily agriculturists, the Anasazi had 200 villages in Chaco Canyon, all connected by roads. However, a shifting climate, which saw the land begin to become drier and made agriculture uncertain, contributed to the disappearance of the Anasazi by about 1100. The Anasazi left behind impressive testimony as to their architectural prowess, including Pueblo Bonito in New Mexico and the extensive cliff dwellings at Mesa Verde in southern Colorado, which are now part of the National Park system and a World Heritage site.

The Eastern Woodlands

The shift to agriculture also led to more stable and complex societies in the Eastern Woodlands. Over a period of about 4,000 years, these stable societies marshaled the labor of their members to construct large numbers of mounds throughout much of the Northeast, as well as the Southeast and its margins. They are collectively known as Mound Builders, a name that seems to suggest these peoples had a shared identity, which given the expanse of time and space would be incorrect. Mounds proliferated throughout eastern North America, ranging as far east as Virginia and as far west as the eastern fringe of present-day Oklahoma. The peoples who built the mounds seem to have had different purposes in mind. Nonetheless, all of them

situated some of their most impressive collections of mounds at the confluence of major rivers, making the largest pre-Columbian communities the hubs of continent-wide trade networks.

Some of the oldest archaeological sites in North America are located in present-day northeastern Louisiana. Not recognized as a series of mounds until the 1980s, Watson's Break is the oldest collection of Indian mounds in North America, having been constructed perhaps a little more than 5,000 years ago. Located on private property, little archaeological work has been done there.

The other major site in northeastern Louisiana is Poverty Point, located to the east of Watson's Break. Close to the Mississippi River, Poverty Point – the name refers to the depleted soils of the area – presents something of a puzzle to anthropologists and archaeologists. The majority of the site consists of low mounds built in a concentric pattern. Since most of the mounds are only a few feet high, they are almost undetectable at ground level. Not until the 1950s, when analysis of aerial photographs showed a landscape with a pattern of low concentric mounds covering a large area, did anyone recognize it as an archaeological site.

From studying the artifacts the Poverty Point people left behind and the remains of their cooking fires, archaeologists have determined that they lived on the mounds. There is no evidence that they practiced agriculture. Living in a land of forests, rivers, and bayous, they had access to a large variety of animals and fish, as well as plant foods, and probably had little or no incentive to engage in agricultural labor. While we know nothing about their spiritual life, there is one high, large effigy mound on the site in the shape of a bird with its wings outstretched. It has been theorized that this mound could have been used for ceremonies, and may have been reserved for a priestly elite who lived on it. It is unknown what the Poverty Point people did with their dead, as no human remains have been found on the site. It has been speculated that bodies were buried off site or placed in the river.

In the Ohio River Valley about 2000 years ago, the people of the Adena-Hopewell culture also built mounds. Like the Poverty Point people, they did not practice agriculture. Their structures differed, however, in several key respects from those of the Poverty Point complex. Rather than many low mounds, the Adena-Hopewell people built quite large ones in which they buried their important personages along with impressive collections of grave goods, presumably intended for use by the entombed in

the next world. The Adena-Hopewell culture vanished by the sixth century. Scholars have put forth a number of possibilities for the disappearance of the Adena-Hopewell people, including climate change and war.

Another group, the Mississippians, appeared about 1,400 years ago and differed from the mound-building cultures that preceded it in one key respect: while Mississippian people also hunted and fished, their primary source of food was agriculture. The Mississippians established their largest city, Cahokia, at the confluence of the Mississippi, Ohio, and Illinois Rivers, in about AD 700. The largest settlement in pre-contact North America, Cahokia's central location – and its proximity to three major rivers – made it the most important trading site in North America. Native American traders from all over the continent transported commodities there, exchanging goods such as obsidian from the upper Missouri River, copper mined in the Lake Superior region, and seashells that originated as far away as the Gulf Coast and the Chesapeake. Cahokia probably reached its apex in about AD 1200, with a population of about 30,000, which is comparable to large eighteenth-century American cities such as Philadelphia and New York. The population probably began to decline because the surrounding landscape could not support so many people. In time, the lands around the site lost their fertility, and firewood, essential for heat and cooking, would have become scarce. By about 1400, Cahokia had been largely deserted. Cahokia's large mounds can, however, still be seen today. In the nineteenth century, American historians and antiquarians, refusing to believe that native peoples could have created such impressive structures, often dismissed the mounds as natural formations. Still others made the rather amazing claim that advanced civilizations that pre-dated Native Americans had created the mounds.

Native American Population before 1492

Throughout much of the twentieth century, scholars of Native America spilled a great deal of ink in a heated debate as to the pre-contact population of North America. In the early twentieth century, ethnographer James Mooney placed the pre-contact population for the lands north of the Rio Grande at a little over one million. Mooney's estimate enjoyed wide acceptance by historians, archaeologists, and anthropologists, and remained the standard interpretation

for nearly a half century. Since the 1960s, however, Mooney's figures have been challenged, as scholars have utilized more sophisticated techniques of estimating population size, such as determining the carrying capacity – that is, the ability of a given region to support a population – and by examining the remains of village middens, or refuse heaps.

In the 1960s, after conducting extensive research in Peru, ethnohistorian Henry Dobyns argued that prior to the arrival of Europeans, North America had a human population of approximately 16 million, and the Americas as a whole may have been home to anywhere between 90 to 112 million people. While Dobyns's figures are still not widely accepted, his work prompted many scholars to revise their population estimates upward, and many now believe that the total population of pre-contact Native North America north of the Rio Grande may have been between 10 and 12 million. Dobyns's other figures and assertions, as well as those of other academics who have entered this debate, remain the subject of dispute.

Obviously, the thorniest part of the population debate is that it is impossible to determine the precise pre-contact population. This is the case for several reasons. Native peoples did not conduct – and would have seen no need to – anything resembling a modern census. While European explorers and missionaries did make estimates of native populations, their numbers usually reflect local (and sometimes isolated) peoples and villages. In other words, they often counted the people they saw – not the multitudes they did not see. When Europeans attempted to extrapolate native populations, they most often based their estimates on unreliable native informants or on wishful thinking, which often made the numbers they fabricated little more than wild guesses.

The effect of European diseases on native peoples compounds the problem of attempting to determine the extent of pre-contact populations. Biologically separated from Asia and Europe for several millennia, the peoples of the Americas lacked exposure to a host of communicable diseases that had long plagued human populations in Europe, Africa, and Asia. This should not be taken to mean that native populations were disease free; that would be grossly inaccurate. Native people suffered from a host of maladies such as arthritis, beriberi, and pellagra. They had not, however, been exposed to the epidemic diseases that ravaged the populations of Europe, Asia, and Africa, such as measles and smallpox.

Native Americans and Old World Diseases

Most of the recorded observations made by Europeans of native people, including of their numbers, took place in the years well after contact. By that time, Old World diseases such as smallpox, measles, and influenza had killed off untold numbers of Indians. Most estimates of native mortality from this incredibly destructive disease event fall somewhere between 50 and 90 percent, but exact numbers do not exist. Another problem was that European diseases did not spread in a predictable pattern. When the French explorer Samuel de Champlain landed at what he named Cape de St Louys in 1604, he portrayed it as a region densely populated with Indians. In fact, he thought there were so many Indians that the French should abandon any thought of colonizing the region. Sixteen years later, English Separatists (often called Pilgrims in American history textbooks) landed at the same place, called it Plymouth, and found evidence of a demographic catastrophe: abandoned, unharvested fields of maize, wigwams falling into disrepair, and most tellingly, human remains lying above ground. They learned later that a European disease epidemic (no one knows which disease it was) had struck, killing most of the inhabitants. However, in a story that would be repeated over the next two centuries, European pathogens seemed to follow no rhyme or reason when they devastated native populations. Nearly all of the Pautuxet peoples of Cape Cod were wiped out. The Wampanoag people lost half of their population, yet their Narragansett neighbors – for the moment at least – remained unscathed by the sickness. In the future, the Narragansett (as would nearly all native peoples) would suffer from a visitation of European diseases.

The effects and rapid dissemination of European diseases could be attributed primarily to native peoples' lack of prior exposure to these pathogens. While smallpox, for example, killed approximately 30 percent of all Europeans who contracted the disease, they at least had some immunity so their odds of survival – particularly if they were not very old or very young – were far higher than those of an American Indian. In large part, this can be attributed to heredity. For several millennia, the ancestors of Europeans, Africans, and Asians had been exposed to the pathogen that causes smallpox. Their immune systems responded by developing antibodies which, in turn, were passed on to their offspring. While not totally successful in protecting one from the malady, the antibodies that Old

World peoples carried granted them somewhat better odds of surviving a bout of smallpox. Another factor was the extensiveness of native peoples' travel and trade networks. Smallpox, if not the most common perhaps the deadliest of European pathogens, had an incubation period of about 12 days, during which a carrier would show no symptoms. This was adequate time for a native person traveling from one region to another, or for a person fleeing an epidemic, to unwittingly expose others. Another factor was native treatment of disease. In most cases, New England's native peoples tended to gather around the sick individual, rather than isolating them.

The Columbian Exchange

The transmission of disease became the most important aspect of what has come to be known as the Columbian Exchange. The Columbian Exchange theory argues that Cristóbal Colón's landing in the Caribbean in October of 1492 initiated a series of global biological exchanges that have continued to this day. Of the three elements of the Columbian Exchange – plants, animals, and pathogens – pathogens, or disease causing organisms such as bacteria and viruses, had the most immediate and dramatic effects on human populations. While Europeans contracted New World diseases previously unknown in Europe – most notably syphilis – most of the exchange in diseases went the other way, with Native Americans being exposed to European pathogens that proved, in large part, deadly to them. The lethality of Old World diseases also made it impossible to enslave the native people of the Americas over the long term; what native people did best in the presence of Europeans was die. While Europeans did enslave native people, the enslaved individuals died quickly and had to be replaced, so Europeans turned to importing Africans, who shared with them a certain level of immunity to Old World pathogens.

The intentional portions of the other aspects of the Columbian Exchange largely benefitted both native peoples and Europeans. Most of the exchange in animals went one way, with Europeans importing domesticated animals such as cattle, sheep, hogs, and horses. Throughout the Americas, native people had domesticated only dogs, turkeys, and in some portions of South America, the llama. Horses began to filter onto the Great Plains in the late

seventeenth century via native rustlers and traders in the Southwest, making possible the horse-buffalo-gun culture that would dominate the region for all of the eighteenth and much of nineteenth centuries.

Native people also appreciated other European livestock species. Sheep, for example, became very important in the Navajo culture and facilitated their transformation over time, from raiders to farmers and herders. Other forms of livestock were, however, less beneficial to native people. Extremely useful to Europeans as a means of bringing fresh meat along with them, pigs had several advantages over other European livestock species. They could forage for food on their own, often freeing humans from the chore of feeding them. They could also defend themselves from most would-be predators. Spanish sailors began the practice of turning a few pigs loose on small islands in the Caribbean, where, lacking predators, they quickly reproduced, providing passing vessels with a supply of fresh meat. In foraging for food, hogs found their way into native people's fields and destroyed their crops. When native people retaliated by killing and eating the offending animals, it often brought them into conflict with Europeans.

Europeans also unintentionally imported other species to the Americas that they would just as soon have left in Europe. The black rat, an animal that played host to the fleas that carried the bubonic plague or "Black Death" that decimated fourteenth-century Europe, often crossed the Atlantic in the hulls of sailing vessels. When ships anchored in the Americas, the rodents crept down anchor chains and ropes, and made their way ashore. Rats ate their way through European food stores, and nearly doomed the English colony at Jamestown, Virginia. In the winter of 1609, the Jamestown colonists placed their harvest of grain – primarily maize – in storage. When they became hungry during the winter, they opened their granary, and discovered that rats had consumed all of their food stores.

Likewise, European plant species could also inadvertently hitch rides to the Americas. Plants from Old World weeds easily found their way into hay or silage fed to livestock aboard ship. It is very likely that the seeds of these plants passed through the gastrointestinal tract of a cow or pig and, perhaps fertilized with the animal's leavings, had a good start in American soil. The importation of grain crops such as wheat and oats also contributed to the introduction of European weeds into the Americas. Sifting of seed for grain could not eliminate wild grasses that inadvertently found their way into

the seed. Plants such as plantain, which native people called the "Englishman's foot" because of how rapidly it spread, and the dandelion, also made their appearance, probably first in European fields in the Americas but spreading later into native fields. Intentionally and otherwise, Europeans also imported crops that benefitted native people. Nearly all of the stone fruits found in the Americas, such as peaches, cherries, and plums, originated in the Old World. Likewise, citrus fruits such as oranges, limes, and lemons originated in the tropics of Africa and Asia.

As part of the exchange, however, plants also traveled from west to east, and Europeans also benefitted immensely from New World crops. Today, maize is the most widely grown and consumed grain on earth. It is also the primary food found on animal feedlots, meaning that the majority of meat consumed today is from animals fattened on corn. It is difficult to imagine Italian cuisine without tomatoes, which originated in Central America. In fact, the first recorded use of a form of salsa, made from peppers and tomatoes, may have occurred when the Aztecs, having briefly driven the Spanish out of their city during Cortes's conquest of their empire from 1519–1521, took a few Spanish prisoners, and after having sacrificed them, ate them after dousing them with a sauce made of tomatoes and peppers.

Perhaps the most important of all the New World crops is the potato, which became a staple food of peoples in the Andes Mountains in South America. Easy to plant, tolerant of poor soils, and able to grow in cold climates, the potato was exported to Europe, where governments hoped that its qualities would allow it to feed large numbers of the poor. After a rough start – peasants were initially suspicious of the unappetizing appearance of the plant – it succeeded spectacularly, and was re-exported to North America, where it also did well.

Despite the considerable (mostly posthumous) fame he gained for "discovering" the Americas, Cristóbal Colón's historical reputation has waxed and waned. During Chicago's 1893 Columbian Exposition, the United States celebrated the four-hundredth anniversary of his landfall, hailing him as a hero. A century later, during the five-hundredth observation of Colón's landing in 1992, his historical reputation had undergone a marked change. While some still viewed him as a fearless explorer and gifted navigator, others pointed out that his explorations instigated an invasion of Native American's homelands that would continue for 400 years, resulting in warfare, the introduction of

European diseases to the Americas, and the deaths – not to mention the mistreatment – of millions of Native Americans. This argument has been countered with the observation that while Colón began the European invasion of the Americas, he should not be held responsible for what followed. If anything, one can agree that Colón did have one indisputable achievement: he established the permanent linkage between *two* "old worlds" that had previously been unaware of each other's existence. But it cannot be denied that his "discovery" had grossly unfortunate consequences for Native Americans.