The Columbian Exchange

Essential Questions

- What were the origins of global trade?
- What were the effects of the Columbian exchange?
- What were some of the environmental and demographic changes that occurred as a result of transoceanic encounters in the early modern era?

Keywords

- coffee
- cotton
- horse
- maize
- potato
Set the Stage
The rise of imperial Europe had a profound effect on human history. During the early modern period, European explorers, merchants, and conquistadores established the first truly global market, linking together the Old World of Eurasia and Africa with the New World in the Americas. The ecosystems and societies of the two hemispheres had evolved independently since the end of the last Ice Age. Each continental system had a limited selection of plants and animals that could be domesticated by humans, a factor which significantly affected the development of human civilizations. The interplay between ecology and history is a complex subject which is often ignored or discounted in textbooks. When studying early modern history, however, it is absolutely vital to understand the importance of environmental factors that allowed tiny European nations to subdue entire continents. Contact between the Old World and the New World was not merely between human populations. Animals, plants, and diseases were also introduced into new regions where they significantly altered both the world’s ecosystems and human civilization.

The Origins of Global Trade
European trading-post empires created a complex web of commercial networks, which helped form the first truly global market. Throughout the early modern period, Europe and European merchants gradually created trade routes and trades posts on every continent, with the exception of Australia and Antarctica. European colonies in the Americas formed the basis of a trans-Atlantic economy in which European-manufactured goods were exchanged for silver bullion from Mexico and Peru and plantation cash crops such as sugar and tobacco. European and American goods were in turn traded in sub-Saharan Africa in exchange for African slaves who were forced to labor on mid-Atlantic and American plantations. European colonies in the Indian Ocean Basin likewise stimulated a trans-Pacific economy in which Asian luxury goods were paid for with American silver. By 1750, most of the world, with the exception of some parts of Oceania, was involved in commercial relations with European merchants.

The goods and resources of the Americas, Africa, and Asia became increasingly controlled by European merchants who distributed them in ways that best benefited European nations. For nations with vast colonial territories, the challenge was to use the resources of each area for the greatest benefit of the mother nation. Spain had the largest colonial empire at the beginning of the early modern period and successfully traded its resources on a global scale. From 1555 to 1815, Manila galleons traveled from the Spanish Philippines to Spanish colonial Mexico carrying silks, spices, and other Asian luxury goods. While some of these luxury items were used by the Spanish colonial elite, most of the goods traveled overland to the Atlantic and from there journeyed to Europe. Spanish merchants paid for Asian goods...
with silver mined in the Americas. The silver largely fed into the Chinese domestic economy, which relied on the metal for its currency. Chinese demand for silver was so high that many merchants willingly exchanged Chinese-mined gold for American-mined silver. Spanish merchants could then use both silver and gold to trade with other Asian nations for additional luxury goods.

For nations whose economies were dominated by joint-stock companies, understanding how to best distribute global goods brought heady profits and had a profound impact on global developments. For example, the VOC, the Dutch joint-stock trading company, imported wheat from South Africa, cowry shells from India, and sugar from Brazil. The wheat was used to feed an increasingly urban European population, which was then freed from agricultural duties and could actively pursue manufacturing. This development in turn gave rise to the Industrial Revolution and the concept of “developed nations,” which focus on services or manufacturing verses “developing nations,” which are primarily focused on producing raw goods through agriculture, fishing, mining, and so on. By importing wheat, the Dutch essentially helped western Europe transform into “developed nations” and forced South Africa to remain a “developing nation” throughout the early modern period. The cowry shells were of little use in Europe, but they were in high demand in many parts of sub-Saharan Africa where they were used as a form of currency. So Indian cowry shells were used by the Dutch to purchase African slaves, many of whom were sent to Portuguese Brazil and various Caribbean islands where they worked on sugar plantations. Between 1600 and 1750, more than three million African slaves would be brought to the Americas to labor on sugar plantations. Sugar and molasses were both in high demand in Europe, and markets in Amsterdam fed the continent’s collective “sweet tooth.” In this way, Europeans were able to extract the greatest benefit from the global trade in goods and resources. A “triangular” trade between Europe, Africa, and the Americas was thus created in which people and goods were exchanged in ways that most benefited Europeans.

Unfortunately, the voracious European appetite for wealth often led to the exploitation of all other ethnic groups and the transformation of the world’s diverse ecosystems. For Native Americans, the year 1492 marks the beginning of a long history of conquest, disease, slave labor, and cultural genocide. For Africans, the

Spanish galleons were huge ships that carried luxurious merchandise and raw silver between Spain and its various colonies.
opening of the Atlantic doomed millions of people to wretched lives of slavery, far away on foreign continents. Asian interactions with Europeans gradually led to a form of economic serfdom as European merchants increasingly encroached on and controlled Asian markets. Throughout the early modern period, humans exploited the world’s natural and agricultural resources on a new scale. Several kinds of animals were at risk because their pelts were fashionable in Europe, North America, and China. For example, during the seventeenth century approximately 250 thousand sable pelts were exported from Siberia to line the clothing of the elite. During the eighteenth century, more than 16 million North American beavers were trapped, their skins used to make gentlemen’s hats and cloaks. Other species, including whales, walruses, seals, tigers, and elephants were hunted aggressively for their pelts, ivory, oil, and other animal products which were in demand by global consumers. A few animals were used to feed the growing human population, for example the Atlantic codfish, but more often species were hunted to feed a growing desire for luxury goods. Many of these species were driven into extinction or near extinction, forever altering ecosystems.

**The Columbian Exchange**

Perhaps the most profound result of the rise of global trade was the Columbian exchange, the exchange of animals, plants, diseases, human populations, and culture between the Old World and the New World. It is considered one of the most important ecological and cultural events in all of human history. It affected
almost every society on earth by introducing new crops and livestock, altering traditions, and leading to agricultural booms, which in turn supported a growing global human population. Eurasian diseases decimated indigenous populations in the Americas, killing anywhere from 50 to 90 percent of the pre-contact population. This loss allowed Europeans to more easily conquer and control the Americas, transforming the continents both socially and ecologically. The term “Columbian exchange” was first coined in 1972 by Alfred W. Crosby, an American historian who provided geographic and biological reasons for European imperialism. He successfully argued that ecology plays a significant role in history and that by understanding the ways humans interact within their environment, it is possible to understand why certain regions dominate others.

Eurasian and American ecosystems and societies had developed separately for at least 13,000 years, since the end of the last great Ice Age. There is no evidence of Native American attempts to colonize Eurasia, except for a small population of Inuits (Eskimo) from Alaska who crossed the Bering Straits to settle in Siberia. The few early Eurasian attempts at colonizing the Americas were unsuccessful and left no lasting mark on either continent. Thus American and Eurasian societies were extremely different not only culturally and technologically, but also in terms of domesticated plants and animals. These differences were largely responsible for the European conquest of the Americas and helped determine the scope and impact of the Columbian exchange.

When the first Homo sapiens arrived in the Americas, they encountered a diversity of large animals, similar to those in modern Africa. But during the late Pleistocene Era (c. 9000 B.C.) there was a mass extinction of most of North and South America’s large wild mammal species, due to a combination of climate change and overhunting by humans. This event would have a dramatic impact on later Native American societies. By 1492, Eurasian civilizations had domesticated 13 large species including horses, cattle, pigs, and sheep. Eurasia therefore had a distinct advantage in terms of food, wool and hide, transportation, warfare, and even agriculture. By contrast, South American civilizations had domesticated only one large animal, the llama, or alpaca. While a llama provides meat and wool and can be used to transport goods, it is not large enough to bear an adult human rider nor can it be used in warfare or to pull a plow. In North America, prior to 1492, the dog served as the only domesticated animal.

European settlers could not imagine life without domesticated animals. On Columbus’s second voyage, he brought horses, cattle, sheep, pigs, and chickens, and these animals multiplied rapidly until they were found in virtually every European settlement. While most of these animals were introduced to America for the first time, the horse was a reintroduction. Horses originally evolved in North America and had migrated to Eurasia via the Bering Straits, but then died off in the Americas during the Pleistocene extinction. Other animals that were introduced in the early 1600s to the Americas include such helpful insects as honeybees, silkworms, and the common earthworm. By contrast, only a few indigenous American animals were introduced into Europe. Llamas, alpacas, turkeys, parrots, and numerous other tropical birds were taken to Europe as curiosities. The guinea pig originated
Contact Between Europeans and Native Americans

As I saw that they were very friendly to us, and perceived that they could be much more easily converted to our holy faith by gentle means than by force, I presented them with some red caps, and strings of beads to wear upon the neck, and many other trifles of small value, wherewith they were much delighted, and became wonderfully attached to us.

—Christopher Columbus

Thereupon the Tlaxcalan rulers went to meet them, taking along food: turkey hens, eggs, white tortillas, fine tortillas. They said to them, “Welcome, our lords.”

—Nahuatl Accounts of the Conquest of Mexico

These two excerpts offer distinct snapshots of contact between Europeans and Native Americans during the late fifteenth and sixteenth centuries. The first excerpt describes the very first cross-cultural encounters from the European perspective. The second excerpt chronicles the Native American perspective of Europeans a generation later during the time of the great conquistadores.

While early contact seemed to offer hope for peaceful and mutually beneficial exchanges, over time Europeans obviously held an overwhelming advantage because of their immunities to communicable diseases like smallpox, which weakened Native American civilizations. Diseases were an important part of the Columbian exchange, but food and manufactured goods were also part of these early modern cross-cultural encounters.

According to Christopher Columbus’s first journal in the Americas, early contact between Europeans and Native Americans was a mostly positive event. Europeans believed that they could convert indigenous peoples to Christianity and establish a new market for European goods. Native Americans were similarly pleased by the cross-cultural encounter, viewing Europeans as both a generous and exotic people with whom permanent beneficial alliances might be developed. The Columbian exchange was put into immediate effect as Spaniards introduced new manufactured goods to the Taino, who in turn provided new foods and other products.

A generation later, Native Americans in Mexico would similarly greet Europeans with open arms, viewing the conquistadores as great men worthy of respect and adulation. To honor the Europeans, the Tlaxcalan rulers brought food fit for a feast, most likely in the hope that such behavior would encourage the Europeans to become political and economic partners. It soon became obvious that contact between European cultures and Native American cultures was not necessarily mutually beneficial.
in the Andes where it was used by the Inca as an important protein source, but after being introduced into Europe in the sixteenth century, the rodent gained widespread popularity as a household pet.

Europeans introduced a variety of cereals such as wheat, barley, and rice as well as grapes and olive trees. Portuguese and Spanish immigrants yearned for their native foods, and in time the American agricultural output would allow these early immigrants to export these plants back to Europe. Europeans also introduced into the Americas several tropical Asian and African plants including bananas, coffee, tea, and sugar cane. Columbus himself introduced sugar cane into the islands of the Caribbean, where it would later become the principal cash crop of the region. Several indigenous American plants similarly transformed Eurasia. Potatoes, corn, tomatoes, cocoa beans, pumpkins, avocados, pineapple, peppers, and peanuts all originated in the Americas. Tobacco also originated in the Americas and was first introduced into Europe by sailors from Columbus’s crew.

In terms of technology, Europeans were much more advanced in many ways than their American counterparts, especially in terms of tools and warfare. By 1492, Europeans made tools and weapons with a variety of metals including copper, bronze, and iron. In contrast, Native American societies principally relied on stone, wood, and bone for tools. European weapons included steel swords, daggers, and firearms, and soldiers were protected by steel body armor and helmets. Native American weapons were more primitive, generally little more than clubs, axes, bows, arrows, and slings. Native American warriors wore quilted leather armor which offered little protection from European weaponry. Native American warriors were all footmen, while European forces included cavalry—a distinct advantage both physically and psychologically. Eurasian sailing ships were also superior to any of the watercrafts produced by the most advanced American civilizations. All of these technologies and more were soon introduced into American society. Perhaps the most surprising technological exchange was the introduction of the wheel to the Americas. The origin of the wheel in Eurasia dates back to the earliest days of civilization. In the Americas, the only wheels that existed prior to 1492 have been found on Mexican ceramic toys. Why the Americas failed to develop this basic yet transformative tool is unknown.

**Effects of the Columbian Exchange**
The Columbian exchange transformed the culinary, medicinal, and other plant-based traditions of virtually every region in the world. New World crops such as sweet potatoes were eagerly incorporated into Chinese cuisine, while maize (corn) became a staple in many parts of Africa. Old World plants like coffee and cotton grew easily in the New World and soon emerged as cash crops that drove entire economies. Many rumors circulated about the new plants, including a few which suggested that they were “miracle” drugs capable of curing any disease. For example, in 1571, a Spanish doctor, Nicolas Monardes, wrote a book on medicinal herbs, which claimed that tobacco could cure 36 distinct diseases. As a result, many Europeans considered smoking tobacco to be a healthy habit for more than two centuries afterward.
Other plants were rumored to carry the plague or exasperate other diseases. One such plant was the humble potato. Although it was introduced to Europe by the Spanish around 1550, more than a century passed before European farmers began to actively cultivate it. By the 1680s, however, fried potatoes were being sold on the streets of Paris; the very first “French fries.”

As Europeans discovered the potato’s nutritional content and ability to grow in rocky soils, potatoes soon spread rapidly, eventually becoming the dominant crop of Ireland. Unfortunately, the Irish practiced monoculture and grew only one species of potato. This lack of genetic variation assisted the spread of a plant disease, which in turn resulted in the devastating nineteenth-century Irish famine.

Animals were also introduced to new regions during the Columbian exchange. Relatively few New World animals were introduced to Eurasia. Raccoon and mink are both native to North America and were brought to Europe for their fur, but wild populations soon emerged. One of the few New World animals that actively threatens Old World ecosystems is the Gray Squirrel, which has displaced native squirrels in Britain, Ireland, Italy, and other regions in Europe. Otherwise, most American animals were regarded as mere curiosities. By contrast, numerous Eurasian animals were introduced in the Americas, which have left a dramatic impact on the continents’ ecosystems and history.

European animals had few natural predators in the New World and multiplied rapidly, particularly when they escaped from European settlements and were allowed to roam freely. For example, in 1587, approximately one hundred cattle were abandoned on the plains of Brazil and within twenty years had increased to over 100,000. Herds of wild horses and sheep also existed, voraciously eating the native plants and posing a significant environmental threat. Rabbits were introduced by Europeans purposefully, while rats, which stowed away on ships, were introduced accidently. Both of these rodents bred rapidly, threatening native species. The marauding livestock and rodents also affected

The cocoa plant, used to make chocolate, was indigenous to South America. It quickly became popular among Europeans who reveled in its sweetness and were tantalized by its exotic origins.
the lives of the indigenous peoples. Among agriculturalists, the arrival of the European animals was often destructive since the animals destroyed or ate their crops, which concerned many colonial officials. In a letter to the Spanish monarch, the first viceroy of Mexico, Antonio de Mendoza, wrote, “May your lordship realize that if cattle are allowed, the Indians will be destroyed.”

In reality, however, many Native Americans were quick to adapt to the new animals. The wild cattle were hunted for meat and hides while shepherding and horses were incorporated into traditional culture. For example, the Navaho tribe in the southwestern United States came to rely on sheep both for food and wool to make their distinctive rugs. Several North American tribes, particularly those living on the Great Plains, used horses to hunt buffalo and engage in frequent battles. Horseback riding was also adopted in South America by tribes like the Mapuche, whose warriors relied on a strong cavalry force to repel Spanish invaders for almost 300 years.

**Environmental and Demographic Changes**

The Columbian exchange dramatically transformed the ecosystems of the New World. Grazing animals like horses, cattle, and sheep voraciously ate native plants, while burrowing animals like rabbits and brown rats disrupted the soil. Sometimes formerly domesticated animals became wild; for example, mustangs are a type of North American wild horse whose ancestors date back to the Columbian exchange. Sometimes introductions were accidental, including tumbleweeds and wild oats, two weeds which soon significantly out-competed native plants. Zebra mussels were another accidental introduction. This freshwater shellfish is native to lakes in southern Russia. It gradually spread across Europe, and from there to the Americas, by clinging to the bottom of boats. Many hundreds of plants and animals were introduced to the Americas from Eurasia and Africa during the original Columbian exchange.

The Columbian exchange also involved the transmission of infectious diseases. Europeans had developed disease-resistant immunities to germs causing: smallpox, measles, influenza, bubonic plague, typhus, and tuberculosis. African diseases including malaria and yellow fever were also transmitted to the Americas, where they affected Native Americans and Europeans alike. Most of the germs responsible for infectious diseases evolved from diseases that affect domesticated animals. Because Eurasia and Africa have so many domestic animal species and because people commonly lived very close to their animals, disease and their antibodies developed accordingly. Indigenous Americans, by contrast, had fewer opportunities to develop either diseases or the subsequent immunities. As a result, infectious disease was the single greatest killer of native populations. The only infectious disease believed to have originated in the Americas is syphilis. Arriving in Europe as early as 1493, syphilis spread rapidly across the European continent during the sixteenth century. It also affected many Spanish and Portuguese immigrants who engaged in sexual relations with indigenous Americans, the most famous example being the conquistador Hernandez Cortez.

Because of this exchange of diseases, the most notorious result of the Columbian exchange was the virtual elimination of almost all Native American societies. By the end of the sixteenth century, the thriving population of the Americas had
been reduced by 5,090 percent, though historians disagree sharply on the pre-1492 population levels (estimates range anywhere from 20 to 70 million). In 1519 the population of Mexico was approximately 25.3 million, but it fell to 1 million over the course of the next century. In Peru, a population of 1.3 million in 1570 had fallen to 600,000 by 1620. On the island of Hispaniola, a thriving population of 100,000 natives in 1492 was reduced to only 300 natives by 1570. As Europeans continued to spread throughout the Americas, many native societies were decimated without any military action. The rapid spread of European diseases destroyed advanced North American civilizations, including those in the U.S. Southeast and the Mississippi River system. Today, only 5 percent of the original native population of North America still exists, and indigenous tribes live on reservations, those lands deemed undesirable to the larger European-based population. In parts of Central America and the Andes, Native American populations were more numerous, so despite warfare and epidemics a larger population remains, which is either Native American or mixed. This is particularly true at high altitudes in the Andes. In total, these epidemics caused the worst demographic catastrophe in human history. Between 1500 and 1800, more than 100 million people died as a result of Eurasian and African diseases imported into the Americas and the Pacific Islands.

While the Columbian exchange decimated the native populations in the Americas, it simultaneously triggered population booms in Eurasia. In 1492, Eurasian populations were still recovering from the bubonic plague, and the global human population was approximately 425 million. Within a century, it rose 25 percent to approximately 545 million during the same period that infectious diseases were ravishing Native American populations. One of the main reasons for the Eurasian population growth was that new crops and agricultural techniques introduced by the Columbian exchange increased the global food production. More than 30 percent of all foods eaten today are of American origin, and they include some of the most readily available and widely grown crops. With more food available, more births occurred, and the population grew accordingly. By 1800, the global population rose above 900 million, more than doubling the pre-conquest numbers.

**Summary**

The Columbian exchange is considered to be one of the most important ecological and cultural events in world history. It involved a trans-Atlantic transference of plants, animals, diseases, human populations, and traditions between Eurasia, Africa, and the Americas. New crops and livestock changed culinary and medicinal traditions as well as cultural norms across the globe. The ramifications of this exchange would be decidedly positive for Europe but overwhelmingly negative for the indigenous peoples of the Americas and Africa. Eurasian populations benefited from the new foods and sources of wealth that came from the American colonies encouraging a population boom and an increasingly urban population. Eurasian diseases annihilated Native American populations: some historians estimate that as much as 90 percent of the pre-contact population ultimately died as a result of Eurasian diseases. With indigenous populations crippled, Europeans could more easily conquer the Americas and establish societies that mimicked European institutions.

**SELF-CHECK**

Which disease transmitted during the Columbian exchange was native to the Americas?
and traditions. While some Africans benefited from new foods introduced from the Americas, the rising slave trade was a significant factor in the Columbian exchange. Not only were millions of Africans forced to immigrate to the Americas, but the gender balance was upset in Africa, significantly altering African society.

**Looking Ahead**

The Americas were not the only region affected by the rise of European imperialism. Australia and Oceania were also explored, colonized, and transformed by Europeans. The ecosystems and human populations of the Pacific had evolved independently from the rest of the world. So contact between Pacific Islanders or Australian Aboriginals and Europeans resulted in a cultural and biological exchange similar to the Columbian exchange between Eurasia and the Americas. However, this exchange tended to be more one-sided with Eurasian animals, plants, diseases, and cultural traditions being introduced to Oceania, while indigenous species and native populations were subjugated, ignored, or treated as mere curiosities. Many of the Pacific Islands retain active native cultures, a factor which is likely due to their size and location. Because of the small size of most islands, there was typically little interest in creating permanent colonial settlements, so native cultures were allowed to continue with limited disturbance. Australia, by contrast, was large enough to attract permanent European-based settlements and had a weak population that was unable to successfully defend the territory from waves of invaders.

**SELF-CHECK ANSWERS**

1. The VOC imported cowry shells from India because they were used as a form of currency in many parts of sub-Saharan Africa and could be used to purchase slaves.

2. The llama, alpaca, and dog were the three native animals domesticated in the Americas.

3. Americans thought that tobacco had important health benefits. Potatoes were suspected of carrying diseases, and over a century passed before they would be commonly eaten.

4. Syphilis is the only disease native to the Americas that was transmitted to Europeans during the Columbian exchange.
Unit 6, Lesson 4
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