The Columbian Exchange

When Christopher Columbus and his crew made land in the Bahamas in October 1492, the two long-separated worlds, the Old World and the New World, were reunited once and for all after thousands of years of isolation. Columbus's voyage, along with the many voyages that followed, disrupted much of the biological segregation (separation) between the two worlds.

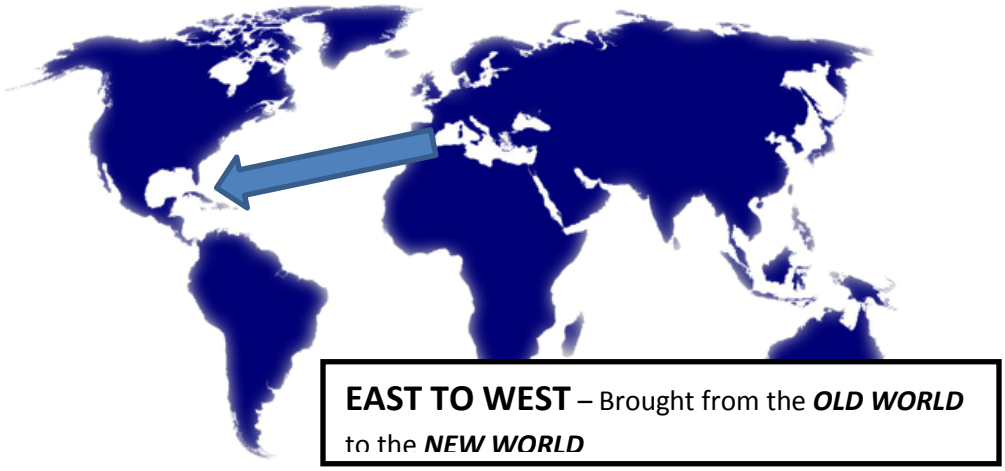
After Columbus' arrival in the Americas, the animal, plant, and bacterial life of these two worlds began to mix. This process was called the Columbian Exchange. The Columbian Exchange had dramatic and lasting effects on the world. New diseases were introduced to Native American populations that had no prior experience of them. The results were devastating. These populations also were introduced to new weeds and pests, livestock, and pets. New food and crops were introduced to Europe, Asia and Africa, improving diets and starting new trade and industries in the Old World. The movement of people between the two worlds led to cultural, technological and social changes as well. Religion, language, laws and new ideas changed the lives of people on both sides of the Atlantic Ocean, but especially in the people – both native and European – that came to live in the New World. In addition, the Columbian Exchange expanded the production of coffee, sugar and tobacco use to many millions of people throughout the world. The results of this exchange altered the history of the world.

The Flow from East to West: Disease

By far the most dramatic and devastating impact of the Columbian Exchange followed the introduction of new diseases into the Americas. When the first inhabitants of the Americas arrived across the Bering land bridge between 20,000 and 12,000 years ago, they brought few diseases with them. Why? For one reason, they had no domesticated animals, the original source of human diseases such as smallpox and measles. In addition, as they passed from Siberia to North America, the first Americans had spent many years in extreme cold, which eliminated many of the disease-causing agents that might have traveled with them. As a result, the first Americans and their

descendants (later generations, i.e. children, grandchildren, etc.), perhaps 40 million to 60 million strong by 1492, enjoyed freedom from most of the infectious diseases. Meanwhile, in Asia, Europe and Africa, the domestication of farm animals brought new diseases spread by cattle, sheep, pigs, and fowl (birds).

Soon after 1492, sailors inadvertently (unknowingly) introduced these diseases — including smallpox, measles, mumps, whooping cough, influenza, chicken pox, and typhus — to the Americas. Over the centuries leading up to 1492, millions of people in the Old World had died in various epidemics. In Europe, the Plague or Black Death of the Middle Ages was one of the most well-known examples. For the people living in Africa, Europe and Asia, those among the population that survived these epidemics developed some immunity to these diseases. These immunities were passed on to their children so that each new generation became more likely to survive future outbreaks of the disease. However, the Native Americans had no such immunities. Adults and children alike were stricken by wave after wave of epidemics, which produced catastrophic death throughout the Americas. In the larger population centers of highland Mexico and Peru, many millions of people died from diseases introduced by the Europeans. On some Caribbean islands, the Native American population died out completely. In all, between 1492 and 1650, perhaps 90 percent of the first Americans had died.

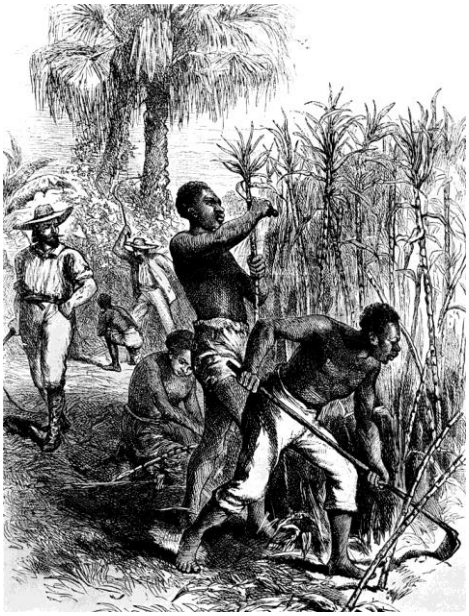


This loss is considered among the largest disaster in human history. By stripping the Americas of much of the human population, the Columbian Exchange rocked the region's ecological (natural) and economic (business) balance. Forests regrew and previously hunted animals increased in number. Economically, the population decrease caused a drastic labor shortage throughout the Americas, which eventually contributed to the establishment of African slavery on a vast scale in the Americas. Africans brought to the New World by the millions as slaves would also have noticeable influence on the new hybrid (mixed) cultures that were developing in a land inhabited by Native Americans, Europeans and Africans in increasingly large numbers. By 1650, the slave trade had brought new diseases, such as malaria and yellow fever, which further plagued Native Americans.

The Flow from East to West: Crops and Animals

Eurasians (people from Europe and Asia) sent much more than disease westward. The introduction of new crops and domesticated animals to the Americas did almost as much to upset the region's biological, economic, and social balance as the introduction of disease had. Columbus had wanted to establish new fields of valuable plants in the Americas. On his later voyages he brought many crops he hoped might flourish there. He and his followers brought the

familiar food grains of Europe: wheat, barley and rye. They also brought Mediterranean plantation crops such as sugar, bananas, and citrus fruits, which all had originated in Asia.



At first, many of these crops fared poorly; but eventually they all flourished. After 1640, sugar became the mainstay of the Caribbean and Brazilian economies (systems of making money). To increase sugar production required vast amounts of workers. Millions of African slaves would be brought to European colonies (settlements) in the Caribbean and South America to meet this demand for labor (workers). The result was some of the largest slave societies ever known. The production of rice and cotton, both brought to the New World in the Columbian Exchange, together with tobacco, formed the basis of slave society in the United States. Wheat, which thrived in the temperate latitudes of North and South America and in the highlands of Mexico, eventually became a fundamental (essential) food crop for tens of millions of people in the Americas. It is true that the spread of these crops drastically changed the economy of the Americas. These new crops supported the European settler societies and their African slave systems. But the Native Americans preferred their own foods.

When it came to animals, however, the Native Americans borrowed eagerly from the Old World. The Columbian Exchange brought horses, cattle, sheep, goats, pigs, and a collection of other useful species to the Americas. Before Columbus, Native American societies in the high Andes had domesticated llamas and alpacas, but no other animals weighing more than 45 kg (100 lbs). And for good reason: none of the other 23 large mammal species present in the Americas before the arrival of Columbus were suitable for domestication. So, while Native Americans had plenty of good food crops available before 1492, they had few domesticated animals. The main ones, aside from llamas and alpacas, were dogs, turkeys, and guinea pigs.

Of all the animals introduced by the Europeans, the horse held particular attraction. Native Americans first encountered it as a fearsome war beast ridden by Spanish conquistadors. However, they soon learned to ride and raise horses themselves. In the North American Great Plains, the arrival of the horse revolutionized Native American life, permitting tribes to hunt the buffalo far more effectively. Several Native American groups left farming to become buffalo-hunting nomads and the most formidable enemies of European expansion in the Americas.

Cattle, sheep, pigs, and goats also proved popular in the Americas. Within 100 years after Columbus, huge herds of wild cattle roamed many of the natural grasslands of the Americas. Wild cattle, and, to a lesser degree, sheep and goats, threatened the food crops of Native Americans, notably in Mexico. Eventually ranching economies emerged, based on cattle, goats, or sheep.

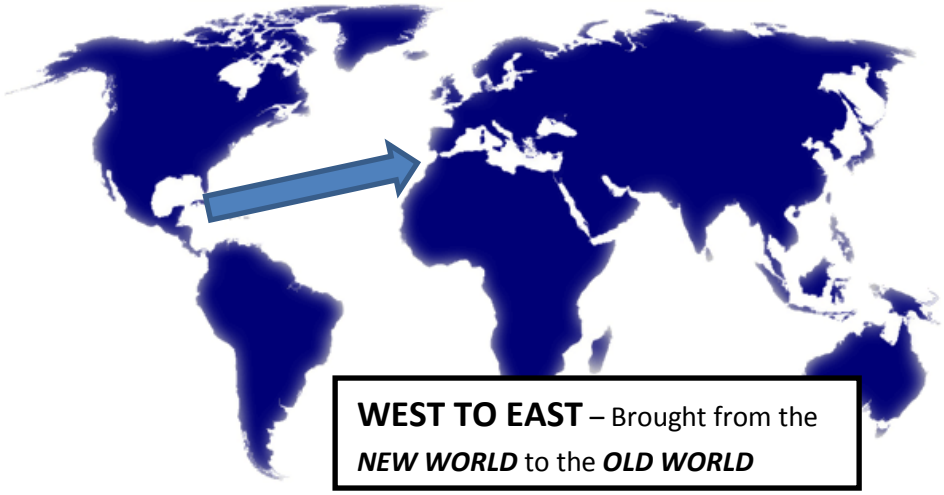
The Flow from West to East: Crops and Cuisine

Corn being grown in Africa

America's vast contribution to Afro-Eurasia in terms of new plant species and cuisine (prepared food) transformed life in places as far apart as Ireland, South Africa, and China. Before Columbus, the Americas had plenty of domesticated plants. By the time Columbus had arrived, dozens of plants were in regular use, the most important of which were maize (corn), potatoes, cassava, and various beans and squashes. Lesser crops included sweet potato, papaya, pineapple, tomato, avocado, guava, peanuts, chili peppers, and cacao, the raw form of cocoa. Maize is now grown all over the world.

Despite maize's success, the humble potato probably had a stronger impact in improving the food supply and in promoting population growth in Eurasia. The potato had little impact in Africa, where conditions did not suit it. But in northern Europe the potato thrived. The potato also fed mountain populations around the world, notably in China, where it encouraged settlement of mountainous regions.

While maize and potatoes had the greatest world historical importance of the American crops, lesser crops made their marks as well. In West Africa, peanuts and cassava provided new foodstuffs (sources of food). Today some 200 million Africans rely on it as their main source of nutrition. Cacao and rubber, two other South American crops, became important export items in West Africa in the 20th century. The sweet potato, which was introduced into China in the 1560s, became China's third most important crop after rice and wheat. It proved a useful supplement to diets throughout the monsoon lands of Asia. Indeed, almost everywhere in the world, one or another American food crops caught on, complementing existing crops or, more rarely, replacing them. By the late 20th century, about one-third of the world's food supply came from plants first cultivated in the Americas. The modern rise of population surely would have been slower without them.



WEST TO EAST – Brought from the ***NEW WORLD*** to the ***OLD WORLD***

In contrast, the animals of the Americas have had very little impact on the rest of the world. One domesticated animal that did have an effect was the turkey. Wild animals of the Americas have done only a little better. Probably after the 19th century, North American muskrats and squirrels successfully colonized large areas of Europe. Deliberate (intentional) introductions of American animals, such as raccoons fancied for their fur and imported to Germany in the 1920s, occasionally led to escapes and the establishment of feral (domesticated that become wild) animal communities. In terms of animal populations, as with disease, the Americas contributed little that could flourish in the conditions of Europe, Africa, or Asia.

The Columbian Exchange at a glance

Countless animals, plants, and microorganisms crossed the Atlantic Ocean with European explorers and colonists in the sixteenth, seventeenth and eighteenth centuries. This chart lists some of the organisms that had the greatest impact on human society worldwide.

	Old World → New World	New World → Old World
Domestic animals	• horses • cattle • pigs • sheep • goats • chickens	• turkeys • llamas • alpacas • guinea pigs
Crops	• rice • wheat • barley • oats • coffee • sugar cane • citrus fruits • bananas • melons • Kentucky bluegrass	• maize (corn) • potatoes • sweet potatoes • cassava • peanuts • tobacco • squash • peppers • tomatoes • pumpkins • cacao (the source of chocolate) • sunflowers • pineapples • avocados • vanilla
Diseases	• smallpox • measles • mumps • malaria • yellow fever • influenza • whooping cough • typhus • chicken pox • the common cold	• syphilis (possibly)