

Columbian Exchange: Spreading Ideas, and Diseases, for Good and Ill

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Chile peppers originated in the Americas but became an important part of Asian cuisine. Photo: Big History Project

For centuries, societies in Afro-Eurasia had interacted on some level and exchanged goods, ideas, people, and diseases. As world travel became possible, these types of exchanges grew more meaningful — and sometimes more perilous.

Different kinds of travelers

American historian Alfred Crosby pointed out something astonishing about modern human history in books he published in 1972 and 1986. Crosby noticed this phenomenon because he was interested in how human history fits into the history of our planet.

Humans have been traveling around the world since about 1500. But Crosby pointed out that it wasn't just humans who were traveling. So were plants and animals that humans use. Human diseases traveled, too, as viruses and bacteria. Rats, cockroaches, fleas, and other hangers-on also traveled.

For millions of years, particular species of plants, animals, and bacteria had stayed in one area of the world. Suddenly, many species began to appear all over the world. Crosby called this remarkable phenomenon the “Columbian Exchange.” The name “Columbian” came from Christopher Columbus, who first voyaged to the Americas in 1492.

Consequences and hypotheticals

The Columbian Exchange had huge significance for both human and planetary history. Geologist Jan Zalasiewicz argues that 100 million years from now, an alien paleontologist would find evidence of the spread of species on Earth.

That observer could see evidence from fossilized pollen from corn and rice, but also might notice the strange globalization of species such as rats and cockroaches.

“The transfer of species globally has become a merry-go-round of living organisms without precedent in the Earth’s four-and-a-half-billion-year history,” Zalasiewicz writes.

Crosby noted that by moving so many other species around the globe in this way, humans were playing a role that had previously been performed by geology and climate. Remember Pangaea?

Between about 300 million and 200 million years ago, most of the planet’s continents were joined together in a single huge continent, which geologists call Pangaea. On Pangaea, species could spread over large areas quite easily. So, when paleontologists today see similar fossil remains across large areas of what was once Pangaea, they are not that surprised. In fact, *Glossopteris* fossils found in similarly dated layers on different continents offer strong evidence for Pangaea, continental drift, and plate tectonics.

What would human history have been like if Pangaea continued, with just one “world zone?” We don’t know, of course. But Crosby pointed out that since 1500, we have, in effect, recreated such a world. Humans have unified the world biologically so that corn, rabbits, goats, tomatoes, and even some diseases can now be found everywhere.

Some friendly passengers

Which species hitchhiked with traveling humans, and what was their impact on human history?

The list of plants that began to travel globally as a result of the Columbian Exchange is very long. It includes most of the major domesticated crops. The Americas contributed many of the crops farmed today in the rest of the world, including potatoes, corn (maize), manioc (cassava or tapioca), numerous varieties of squashes, avocado, chili, tobacco, and cocoa. Can you imagine Italian food without tomatoes? Korean food without chili? How about Ireland without potatoes, or a world without chocolate? Coffee, rice, oranges, and sugar traveled in the opposite direction.

New crops increased the choices available to local farmers, allowing them to adapt their crops to the soils, climates, and landscapes they farmed. Within 50 years of Columbus's voyages, corn — carried by Portuguese ships — was being farmed in parts of China that were unsuitable for rice cultivation. Today, one-third of all the crops grown in China originated in the Americas. The Columbian Exchange represented an agricultural revolution. It is no wonder that populations began to rise in many regions around this time.

Plenty of livestock made the trip as well. Large domesticated animals such as cattle and horses appeared in the Americas. Cattle soon multiplied on the plains of South America and sheep on the grasslands of Mexico. These new animals transformed local landscapes as they ate their way across continents.

The horse-riding cultures of the American Plains Indians evolved as communities that had depended on farming learned to tame horses and hunt in new ways. Ironically, horses had evolved in the Americas only to vanish soon after the arrival of the first humans. Horses survived only in Eurasia where their ancestors had probably migrated across the Bering land bridge during the Ice Age.

Dangerous trespassers

Bugs and diseases traveled, too. In regions that were not used to them, the results could be catastrophic.

In Afro-Eurasia, exchanges of goods, people, and diseases went back many centuries. Populations there had developed a wide range of immunities. When humans from Afro-Eurasia arrived in the Americas and, later, in the Australasian and Pacific world zones, they brought their diseases with them, with devastating results.

According to some estimates, populations in Mesoamerica and the Andes may have fallen by as much as 90 percent. For the Americas, this was a catastrophe much worse than the Black Death, which had devastated Afro-Eurasian societies in the fourteenth century. The destructive spread of Afro-Eurasian diseases helps explain the conquest of American societies by European invaders, the rapid decline of American empires, and the undermining of indigenous cultures and values.

Indigenous Americans understood perfectly well the source of the misfortune. An inhabitant of Mexico's Yucatan peninsula who witnessed the impact of the first Spaniards to arrive, wrote:

(Before the Europeans came) there was then no sickness; they had no aching bones; they had then no high fever; they had then no smallpox; they had then no burning chest; they had then no abdominal pain; they had then no consumption; they had then no headache. At that time the course of humanity was orderly. The foreigners made it otherwise when they arrived here.

Thomas Hariot was an English colonist on the Roanoke Island settlement of 1587. He wrote that local people began to die very soon after their first contacts with European settlers. Here is a simplified passage from his writing:

A few days after we left each town, people there began to die very quickly. In some towns, 20 died. In others 40 or 60. In one town 120 died, which was very many considering their numbers. The disease was strange to them. They didn't know what it was or how to cure it. The oldest men in the country had never seen it or heard of it before, for as long as anyone could remember.

Local populations would suffer in similar ways when European settlers arrived in Australasia and the Pacific. The death of local populations made it much easier for European invaders to build their own societies. Crosby calls these societies, built in the Americas, South Africa, Australasia, and the Pacific, “neo-Europes” (New Europes).

With the Columbian Exchange, humans began to transform the world as a whole rather than just within particular regions or world zones. This is why the great sea voyages that linked the world zones together from the end of the fifteenth century were one of the great turning points in human history. The rapid pace of globalization today is a continuation and acceleration of processes that began 500 years ago.