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## INVESTIGATING THE CONSEQUENCES OF THE COLUMBIAN EXCHANGE

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A HISTORIAN'S JOURNAL ENTRY / BY ANITA RAVI

A new era in human history began in 1492 as the four world zones became connected. For the first time, humans created truly global networks.



Now plants, animals, and people could and did move in all directions across the Atlantic Ocean and the Pacific Ocean. Historians have called this new movement across the Atlantic the Columbian Exchange. To understand the consequences of the Columbian Exchange, I'm going to investigate the impact of the movement of plants, animals, and people across the Atlantic between 1492 and 1850. My goal is to see what effect the new global networks had on the different peoples and regions of the Earth.

### WHAT WAS EXCHANGED BETWEEN 1492 AND 1850?

I start my historical investigations by asking questions that will result in a simple description of what happened. What was exchanged on the new Atlantic networks? What things moved east or west across the Atlantic?

I began to answer these questions by gathering information from a number of history and science books. I created the map and chart below using information from two of these sources, both by Alfred W. Crosby: *The Columbian Exchange: Biological and Cultural Consequences of 1492 and Ecological Imperialism: The Biological Expansion of Europe, 900 – 1900*. The map and chart show what items moved back and forth across the Atlantic in the Columbian Exchange.

## The Columbian Exchange



## Plants and Animals that Moved Across the Atlantic, 1500 – 1650

### Things that moved east: From the Americas to Afro-Eurasia

### Things that moved west: From Afro-Eurasia to the Americas

Maize (corn)	Wheat
Potatoes	Barley, oats
Sweet potatoes	Rice
Cassava (manioc)	Sugarcane
Vanilla	Olives
Peanuts	Peaches, pears, grapes
Tobacco	Okra, cabbage, spinach, turnips
Beans (several types)	Cabbage
Squash	Spinach
Tomatoes	Turnips
Chili peppers	Mustard
Cocoa	Coffee
Pineapple	Cattle
Turkeys	Pigs
	Sheep
	Horses
	Goats
	Chickens
	Dogs (bigger and fiercer than American)
	Honeybees
	Earthworms
	Smallpox
	Measles
	Influenza
	Malaria

## PLANT AND ANIMAL EXCHANGE: SURPRISES

I was surprised that horses, sheep, honeybees, earthworms, sugarcane, wheat, fruits, coffee plants, and diseases came over to the Americas with European travelers. All these things have been common in the Americas for some time, so I had assumed they were always here. It's hard to imagine North America without horses, cattle, honeybees, earthworms, and coffee.

I was also surprised to learn that tomatoes, corn, potatoes, and turkeys traveled for the first time to Europe after 1492. According to the authorities I consulted, before the Columbian Exchange, foods like potatoes, tomatoes, chili peppers, and cocoa didn't grow in Europe, Africa, or Asia. There is no evidence that Afro-Eurasian people knew about or used these foods. Today, I can't imagine Italian food without tomatoes or food from India without chili peppers. Some of the exchange that went on was intentional. The Europeans planned to introduce new crops and animals into the Americas. For example, Spanish explorers brought olive trees on board their ships for the purpose of planting them in the New World. And the Europeans also introduced crops such as sugar, coffee, cotton, and ginger, hoping these would grow well in the Americas so they could sell them back in Europe. Those crops did grow quite well in Brazil, the Caribbean, and in North America. Tobacco, a crop that was native to South America, joined sugar, coffee, and various spices to become very important commodities that Europeans traded around the world. Historians J.R. McNeill and his father, William McNeill, argue in their book, *The Human Web*, that the movement of these "economic plants was often a very deliberate affair, organized by royal authorities seeking to maximize their revenues or advance the cause of science." (208)

However, some exchange was unintentional. Seeds traveled as "secret passengers" in other food sources. For example, historian Luis Martin claimed that in 1535, Inés Muñoz (sister-in-law of the explorer and conqueror Francisco Pizarro and one of the dozen or so European women who lived in Lima, Peru, at the time) got a barrel of rice from Spain. She noticed that in the barrel were a few grains of wheat. Muñoz wondered if the wheat would grow in Peru so she planted a few grains of wheat in a flowerpot. Soon, healthy spikes of wheat grew from those first few grains, so Muñoz tried to replant these in the soil of Peru. According to Martin, the wheat crop grew so well that within three or four years people began to produce bread in Peru. (39 — 40, 42)

In addition to these new crops, Europeans also introduced new animals to the Americas, such as horses, pigs, goats, sheep, and cattle. Some historians argue that these animals were far more important to the indigenous people of the Americas than were the new crops. I can imagine how valuable the horses were for labor and transportation,

and how their use also helped people maintain control of herds of cattle or sheep.

New diseases also traveled to America, including microorganisms that carried smallpox, measles, and malaria. The natives had never been exposed to the diseases that Europeans unintentionally carried with them. I learned that the spread of these new diseases was catastrophic for them.

Now that we have descriptions of what crossed to America and from America, it's time to investigate the consequences and impact of these new plants, animals, and microorganisms on the people of the different regions of the world.

## ANALYZING THE EXCHANGES

Plants from the Americas quickly had a positive impact in Europe, Asia, and Africa. According to the McNeills, maize (corn), cassava (manioc) and potatoes had a very great effect on people's diets in Africa, Europe, and Asia. Each crop grew fast, withstood droughts well, was easy to store, and gave very high yield in calories. Therefore, people in Europe, Africa, and Asia were able to grow these effectively and these crops increased the variety of food people could eat as well as providing them far more energy than other plants. Maize, cassava, and potatoes, along with other American plants such as peanuts, tomatoes, and beans soon spread throughout the world.

## WORLD POPULATION AND THE COLUMBIAN EXCHANGE

With improved diets, I would expect population to grow. But was population growing equally everywhere?

I wondered, did the indigenous people experience a growth in population, particularly with new diseases coming into the Americas? I must remind myself that before 1492, the civilizations of the Americas were highly successful. Like most agrarian civilizations, they had cities, monumental architecture, labor specialization, and vast populations. How then were such a relatively small group of Europeans able to conquer and control these civilizations?

In the Big History Project video *Re-creating Pangaea*, historian Charles Mann argues that there are two main reasons why small groups of Europeans succeeded in dominating and essentially conquering vast numbers of native people in the Americas in a relatively short period of time. One of the reasons, Mann argues, were the biological factors that led to what we now call "the great dying."

For the first time, natives were exposed to new infections, which had a catastrophic impact on their population. Exactly how many people actually died? And how can we possibly know who died? What sources would we need to consult?

To begin this part of my research, I found two different estimates for population: The first, published in 1954 (M.K. Bennett's *The World's Food: A Study of the Interrelations of World Populations, National Diets, and Food Potentials*) and the second, published in 1979 (J.R. Biraben's "*Essai sur l'évolution du nombre des hommes*," which David Christian quotes in *Maps of Time: An Introduction to Big History*). I put them together in the chart below.

Let's ignore the difference between the numbers the demographers used in 1954 and 1979 for a few minutes to look at the trends in each region. What happened to the population in the Americas between 1400 and 1700? What happened to the population in Africa between 1400 and 1700? How about Europe, India, and China? Were there any quite dramatic increases or decreases in population in any one of the regions?

The figures for the Americas between 1500 and 1700 really stand out. This region of the world had a very significant decline in population, losing somewhere around 30 million people during that time. There is no other region of the world that had such a dramatic drop in population. China, India, and Europe had quite dramatic growth in population over that time. Africa either had very modest growth or, according to some, a decline, but nowhere near the decline seen in the Americas.

Two questions about these figures come to mind: Why are there differences in population estimates? What explains the decline in population in the Americas?

#### ANALYZING THE NUMBERS

My best guess as to why there are differences in the numbers between 1954 and 1979 is that historians and demographers were looking at different sources of evidence in those two time periods. In general, Europeans and the Chinese did keep track of their own population numbers through census data — counting the population — which I'm guessing they did mainly for financial reasons. They had to keep track of who needed to pay taxes to the government. This type of tracking may have extended to the countries they traded with, namely India and Africa. However, the difference in numbers in India and China are really striking. It appears that the population of China was greatly exaggerated in 1954, while the population of India was greatly underestimated. In 1954, both India and China were in political turmoil, which may have made it difficult to get accurate numbers from reliable records. By 1979, things had settled down a bit in both countries.

## Estimates of Changes in Population in Selected Regions

1400 — 1700 (population in millions)

	Year of Study/ Year	1400	1500	1600	1700
<b>Americas</b>	1954	30 million	41 million	15 million	10 million
	1979	39 million	42 million	13 million	12 million
<b>Africa</b>	1954	74 million	82 million	90 million	90 million
	1979	68 million	87 million	113 million	107 million
<b>Europe</b>	1954	45 million	69 million	89 million	115 million
	1979	52 million	67 million	89 million	95 million
<b>China</b>	1954	112 million	125 million	140 million	205 million
	1979	70 million	84 million	110 million	150 million
<b>India</b>	1954	46 million	54 million	68 million	100 million
	1979	74 million	95 million	145 million	175 million

I already learned about the “great dying” among the native population of the Americas due to their lack of resistance to European diseases. The historian Robert McCaa agrees that “a demographic disaster occurred and that epidemic disease was a dominant factor.” However, McCaa adds that it was more than just disease that had such a catastrophic impact on these people. To understand why there was such a huge population decline, we also need to remember the “massive harsh treatment (forced migration, enslavement, abusive labor demand, and exorbitant tribute payments) and ecological devastation accompanying Spanish colonization” (qtd. in Bacci). So it’s actually the combination of disease, harsh treatment and the decimation of their food sources that led to an almost 55 percent decline in the native people living in Mexico.

Historians often work from partial evidence and must make reasonable explanations based on that evidence. Still, even if there is enough evidence to identify the exact number of people who died over that 200-year period, two things seem to be clear. First, the loss of human life was devastating and must have destabilized the agrarian civilizations that had been thriving in the Americas. Second, the diseases that Europeans brought with them must have contributed to their ability to conquer these civilizations.

## CONCLUSION

So what were the consequences of the Columbian Exchange? Based on my analysis of the charts above, I can say that for the first time, the world’s separate regions were truly connected via the exchange of goods across the oceans. Historians J.R. and William McNeill believe these are some of the main consequences of the exchange:

- It made the world slightly richer – more goods on the move, more cash changing hands. More crops were spread over larger portions of the globe.
- It made the disease pools more homogeneous, as more and more people were exposed to the same diseases and developed new resistance to them.
- It made the world more unequal because some populations were better able to take advantage of the new connections than others.

Yet the pace of change was still relatively slow. It still took a month to cross the Atlantic by ship. It still took over a year for people, goods, and information to circulate the globe. So while the networks had increased, the rate at which stuff moved was slow.

## Working Bibliography & Notes

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Cover image: Mandan villagers die of smallpox during an 1837 epidemic. Courtesy of W. Langdon Kihn/National Geographic Society/Corbis.

*This short journal entry is an example of how historians go about exploring important questions and looking at new information. They use a mixture of historical documents and the writings of other historians to inform their thinking. All sources are listed in the working bibliography.*