

Different Continents, Different Histories

Selections from a talk by Professor Jared Diamond, author of *Guns, Germs, and Steel*

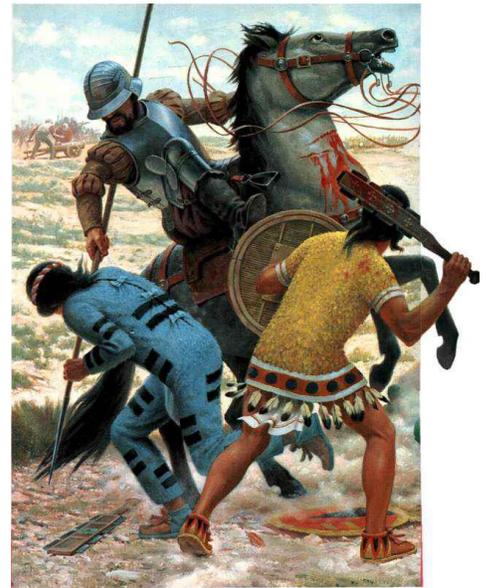
Why did human development proceed at such different rates on different continents for the last 13,000 years?... Until the end of the last Ice Age around 11,000 B.C., all humans on all continents were still living as Stone Age hunter/gatherers. Different rates of development on different continents, from 11,000 B.C. to A.D. 1500, were what produced the inequalities of A.D. 1500 [when Europeans began the exploration and conquest of the New World]... Those differing rates constitute the broadest pattern of history, the biggest unsolved problem of history, and my subject today. Historians tend to avoid this subject like the plague, because of its apparently racist overtones. Many people, or even most people, assume that the answer involves biological differences in average IQ among the world's populations, despite the fact that there is no evidence for the existence of such IQ differences. [So then how can we explain why Eurasia developed so much faster than other parts of the world?]

...Let's consider the collision of the Old World and the New World that began with Christopher Columbus's voyage in A.D. 1492, because the proximate factors (direct causes) involved in that outcome are well understood...

[Jared Diamond goes into detail about these "proximate factors" that made it possible for European conquerors, like Cortés and Pizarro from Spain, to dominate Native American populations, even great empires like the Aztec and the Inca, despite being vastly outnumbered. These factors are summarized below.]

So far, we've identified a series of proximate factors behind European colonization of the New World: namely, ships, political organization, and writing that brought Europeans to the New World; European germs that killed most Indians before they could reach the battlefield; and guns, steel swords, and horses that gave Europeans a big advantage on the battlefield. Now, let's try to push the chain of causation back further. Why did these proximate advantages go to the Old World rather than to the New World? Theoretically, Native Americans might have been the ones to develop steel swords and guns first, to develop oceangoing ships and empires and writing first, to be mounted on domestic animals more terrifying than horses, and to bear germs worse than smallpox.

The part of that question that's easiest to answer concerns the reasons why Eurasia evolved the nastiest germs. It's striking (surprising) that Native Americans evolved no devastating epidemic (widespread) diseases to give to Europeans, in return for the many devastating epidemic diseases that Indians received from the Old World. There are two straightforward reasons for this gross imbalance. First, most of our familiar epidemic diseases can sustain themselves (survive) only in large dense human populations concentrated into villages and cities, which arose much earlier in the Old World than in the New World. Second, recent studies of microbes (germs), by molecular biologists, have shown that most human epidemic diseases evolved from similar epidemic diseases of the dense populations of Old World domestic animals with which we came into close contact. (In other words, animal diseases turned into human diseases.) For example, measles and TB evolved from diseases of our cattle, influenza from a disease of pigs, and smallpox possibly from a disease of camels. The Americas had very few native domesticated animal species from which humans could acquire such diseases.

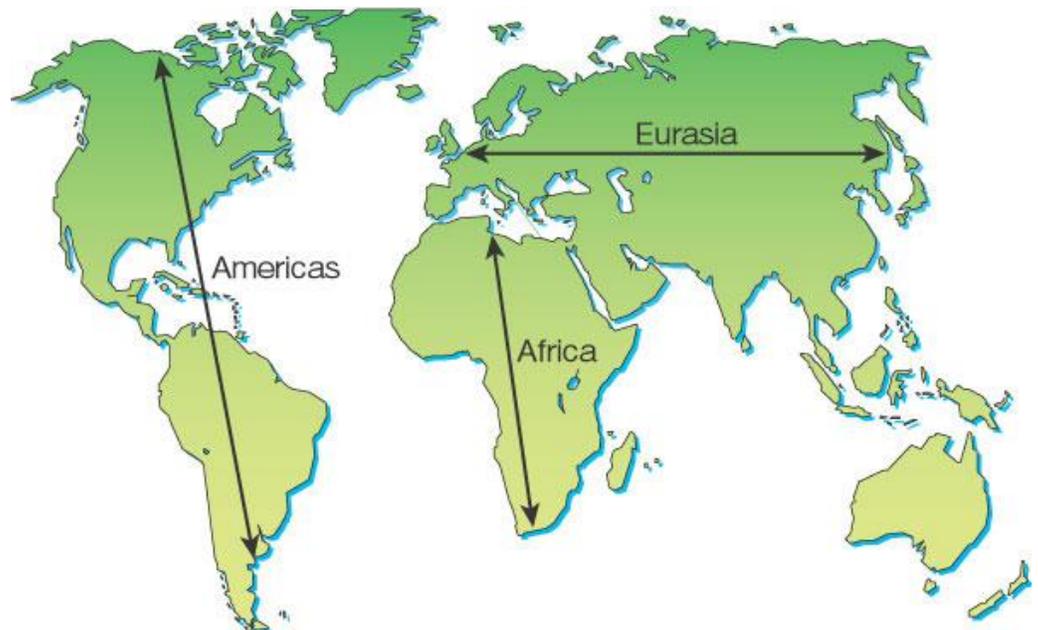


Let's now push the chain of reasoning back one step further. Why were there far more species of domesticated animals in Eurasia than in the Americas? The Americas harbor over a thousand native wild mammal species, so you might initially suppose that the Americas offered plenty of starting material for domestication.

In fact, only a tiny fraction of wild mammal species has been successfully domesticated, because domestication requires that a wild animal fulfill many prerequisites (requirements): the animal has to have a diet that humans can supply; a rapid growth rate; a willingness to breed in captivity; a tractable disposition (obedient nature); a social structure involving submissive behavior towards dominant animals and humans; and lack of a tendency to panic when fenced in. Thousands of years ago, humans domesticated every possible large wild mammal species fulfilling all those criteria and worth domesticating, with the result that there have been no valuable additions of domestic animals in recent times, despite the efforts of modern science.

Eurasia ended up with the most domesticated animal species in part because it's the world's largest land mass and offered the most wild species to begin with. That preexisting difference was magnified 13,000 years ago at the end of the last Ice Age, when most of the large mammal species of North and South America became extinct, perhaps exterminated by the first

arriving Indians. As a result, Native Americans inherited far fewer species of big wild mammals than did Eurasians, leaving them only with the llama and alpaca as a domesticate. Differences between the Old and New Worlds in domesticated plants, especially in large-seeded cereals (grains), are qualitatively similar to these differences in domesticated mammals, though the difference is not so extreme.



Another reason for the higher local diversity of domesticated plants and animals in Eurasia than in the Americas is that Eurasia's main axis is east/west, whereas the main axis of the Americas is north/south. Eurasia's east/west axis meant that species domesticated in one part of Eurasia could easily spread thousands of miles at the same latitude, encountering the same day-length and climate to which they were already adapted. As a result, chickens and citrus fruit domesticated in Southeast Asia quickly spread westward to Europe; horses domesticated in the Ukraine quickly spread eastward to China; and the sheep, goats, cattle, wheat, and barley of the Fertile Crescent quickly spread both west and east.



In contrast, the north/south axis of the Americas meant that species domesticated in one area couldn't spread far without encountering day-lengths and climates to which they were not adapted. As a result, the turkey never spread from its site of domestication in Mexico to the Andes; llamas and alpacas never spread from the Andes to Mexico, so that the Indian civilizations of Central and North America remained entirely without pack animals (work animals); and

it took thousands of years for the corn that evolved in Mexico's climate to become modified into a corn adapted to the short growing season and seasonally changing day-length of North America.



Eurasia's domesticated plants and animals were important for several other reasons besides letting Europeans develop nasty germs. Domesticated plants and animals yield far more calories per acre than do wild habitats, in which most species are inedible to humans. As a result, population densities of farmers and herders are typically ten to a hundred times greater than those of hunter/gatherers. That fact alone explains why farmers and herders everywhere in the world have been able to push hunter/gatherers out of land suitable for farming and herding. Domestic animals revolutionized land transport. They also revolutionized agriculture, by letting one farmer plough and manure much more land than the farmer could till or manure by the farmer's own efforts. Also, hunter/gatherer societies tend to be egalitarian and to have no political organization beyond the level of the band or tribe, whereas the food surpluses and storage made possible by agriculture permitted the development of stratified (split between social classes), politically centralized societies with governing elites. Those food surpluses also accelerated the development of technology, by supporting craftspeople who didn't raise their own food and who could instead devote themselves to developing metallurgy,

writing, swords, and guns.

Thus, we began by identifying a series of proximate explanations ÷ guns, germs, and so on ÷ for the conquest of the Americas by Europeans. Those proximate factors seem to me ultimately traceable in large part to the Old World's greater number of domesticated plants, much greater number of domesticated animals, and east/west axis. The chain of causation is most direct in explaining the Old World's advantages of horses and nasty germs. But domesticated plants and animals also led more indirectly to Eurasia's advantage in guns, swords, oceangoing ships, political organization, and writing, all of which were products of the large, dense, sedentary, stratified societies made possible by agriculture.

... The broadest pattern of history ÷ namely, the differences between human societies on different continents ÷ seems to me to be attributable to differences among continental environments, and not to biological differences among peoples themselves. In particular, the availability of wild plant and animal species suitable for domestication, and the ease with which those species could spread without encountering unsuitable climates, contributed decisively to the varying rates of rise of agriculture and herding, which in turn contributed decisively to the rise of human population numbers, population densities, and food surpluses, which in turn contributed decisively to the development of epidemic infectious diseases, writing, technology, and political organization.

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