

The following quotations are taken from Jared Diamond's book *Guns, Germs, and Steel: The Fates of Human Societies* (New York: W.W. Norton, 1999), pages 176-189. These quotations summarize his ideas about the relationship of the geographic axes of the continents (as conventionally defined) to differences in human technological development. For more information, read Diamond's book, Chapter 10, "Spacious Skies and Tilted Axes."

On the map of the world, compare the shapes and orientations of the continents. You'll be struck by an obvious difference. The Americas span a much greater distance north-south (9,000 miles) than east-west: only 3,000 miles at the widest. . . . That is, the major axis of the Americas is north-south. The same is also true . . . for Africa. In contrast, the major axis of Eurasia is east-west. What effect, if any, did those differences in the orientation of the continents' axis have on human history?

Axis orientations affected the rate of the spread of crops and livestock, and possibly also of writing, wheels, and other inventions. That basic feature of geography thereby contributed heavily to the very different experiences of Native Americans, Africans and Eurasians in the last 500 years.

Just as some regions proved much more suitable than others for the origins of food production, the ease of its spread also varied greatly around the world. . . . At the one extreme was its rapid spread along east-west axes: from Southwest Asia both west to Europe and east to the Indus Valley; . . . and from the Philippines east to Polynesia. . . . At the opposite extreme was its slow spread along north-south axes: . . . from Mexico northward to the U.S. Southwest . . . [to] the eastern United States . . . from Peru north to Ecuador.

Why was the spread of crops from the Fertile Crescent so rapid? . . . Localities distributed east and west of each other at the same latitude share exactly the same day length and seasonal variations. To a lesser degree, they also tend to share similar diseases, regimes of temperature and rainfall, and habitats or biomes (types of vegetation) . . . the germination, growth, and disease resistance of plants are adapted to precisely those features of climate. Seasonal changes of day length, temperature, and rainfall constitute signals that stimulate seeds to germinate, seedlings to grow, and mature plants to develop flowers, seeds and fruit. . . . Animals too are adapted to latitude-related features of climate.

Thus, Eurasia's east-west axis allowed Fertile Crescent crops quickly to launch agriculture over the band of temperate latitudes from Ireland to the Indus Valley. . . . Contrast the ease of east-west diffusion in Eurasia with the difficulty of diffusion along Africa's north-south axis. . . . Similarly, the spread southward of Fertile Crescent domestic animals throughout Africa was slowed by climate and disease.

Contrast also the ease of diffusion in Eurasia with its difficulties along the America's north-south axis. The distance between Mesoamerica and South America . . . is only 1,200 miles, approximately the same distance in Eurasia separating the Balkans from Mesopotamia. . . . But other crops and domestic animals failed to spread between Mesoamerica and South America. The cool highlands of Mexico would have provided

ideal conditions for raising llamas, guinea pigs, and potatoes, all domesticated in the cool highlands of the South American Andes. Yet the northward spread of those Andean specialties was stopped completely by the hot intervening lowlands of Central America.

Latitude . . . is a major determinant of climate, growing conditions, and ease of spread of food production. However, latitude is of course not the only determinant, and it is not always true that adjacent places at the same latitude have the same climate. . .

Topographic and ecological barriers . . . were locally important obstacles to diffusion.

Study Questions

1. Compare the map of Earth's major climate zones (tropical, temperate, arctic) with the world biomes map and with the map showing axes of the inhabited continents above. How many biological and climate zones would a person, plant, or animal have to cross going from point A to B on the map? From C to D? From E to F?
2. Why might it be easier for plants, animals, and people to migrate within the same or similar biomes and climate zones than to cross between very different zones? Which of the three life forms is most adaptable? What if we include microorganisms?
3. Give examples of plant, microorganism, animal, and human migrations you have learned about that involved long distances. Was the crossing of the Alaska/Eurasia land bridge that historians believe helped populate the Americas with people from Eurasia an east-west migration or a north-south migration? What about diseases and insects?

Assessment

Using evidence from these maps, write a paragraph explaining the quotations from Jared Diamond's *Guns, Germs, and Steel*. Use supporting evidence from your study of various types of maps.