

Chapter 2: Rise of the Western World

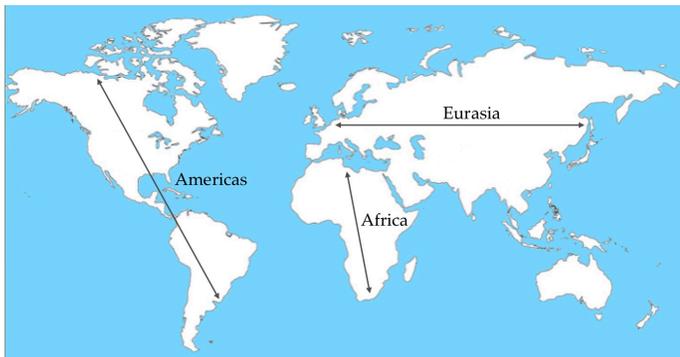
Europe's Expansion and America's "Discovery" (1350 - 1650 CE)

European states in the fourteenth century were a far cry from the most powerful empires in the world at that time. However, by end of fifteenth century several European nations would embark on the first expeditions leading to an era of globalization. Since plant and animal domestication occurred in the fertile river valleys of regions all around the world, why is it that the Europeans, in a territory outside of these regions, would find themselves in a position to dominate the globe?

Geography's Role in Global Disparity

First off, the **Fertile Crescent** of the Eurasian supercontinent had by far the best collection of plants and animals suitable for domestication. Crops such as wheat, barley, flax, and peas were domesticated. Additionally, animals such as cows, goats, sheep and pigs were domesticated as well. In contrast, the plants and animals of other world regions were less useful. For example, Native American farmers had to struggle to develop maize as a useful food, and only one mammal of any great use – the llama – was domesticated in all of South America.

Crops and animals outside of their natural habitat tend to die out fairly quickly, especially if moved north or south of their original locations. However, since places along similar lines of latitude often share a comparable climate and length of day, the spread of people, food, animals, and ideas occur more efficiently along these east-west axes. Innovations diffused across the supercontinent of Eurasia followed by a modest population explosion; consequently, the same thing did not occur in the continents of the Americas, nor did it in Africa. Over thousands of years of migration and trade, the crops and animals of the Fertile Crescent made their way into Europe – in large part due to the Europeans' geographic location.



Beastly Benefits Toward Immunity

The increasing availability of animal energy in ancient Europe – as well as most of Eurasia - expanded peoples' ability to till the soil. Techniques of harnessing animals evolved from the early forms of tying plows to the heavy horns of oxen to advanced harnessing systems developed

for horses, could pull plows much faster, and could be ridden much more efficiently. The heavy horse collar - diffused from China to Europe around the eighth or ninth century - transferred weight to the shoulders of the horse, and away from their windpipe and neck preventing choking. The use of large draft horses enabled farmers to till heavier, more productive soils, which ensured better yields of grain. Better yields meant more food for people and animals alike, and selective breeding led to larger, more powerful animals.



Draft horses pulling a plow with heavy collars.

Over time an unintended benefit helped the Europeans as they developed an improved **immunity** – or resistance - toward disease. Because the Europeans had large domesticated animals (oxen, cows, horses, etc.), and because the internal circulation systems of humans and large mammals are somewhat similar – the Europeans' immune systems were more developed than, say, the Native Americans. The largest animals the Native Americans had domesticated by the time the first Europeans reached the "**New World**" (the Americas) were llamas and dogs. These animals were not used as beasts of burden and certainly were never used for transportation or for riding into battle.

Many Europeans died from animal-borne diseases such as the plague, influenza, cholera, typhus, and smallpox. Those who survived passed their immunity onto the next generation. Over thousands of years the immune systems of the Europeans improved as those who were more susceptible toward disease died off through natural selection. The Europeans would not find their way to the Americas en masse – or large groups - until the end of the fifteenth century. However, animal domestication is one of the key reasons why the European diseases (e.g., smallpox) were much more devastating for the Americans, than the American diseases (e.g., syphilis) were to the Europeans.

European Gains through Commerce

Europe's advantageous relative location enabled the people of that region to acquire goods, knowledge, and technology from powerful Eastern empires through the Silk Road. Through these connections the Europeans

gained important improvements in technology, which helped them traverse the vast oceans of the world, and dominate foreign population through superior weaponry.

The first **magnetic compass** most likely originated in China around the third c. BCE, but did not make its way into Europe until the twelfth c. CE. The Earth produces a magnetic field due to electric currents caused by the rotation of its core, which is primarily composed of conductive molten iron. As such, the Earth is essentially a magnet with a North and South Pole. A magnetized needle would lie at the heart of a compass, always pointing toward magnetic north (which is not true north, but close enough to guide early explorers).



Replica of an early Chinese compass.

The Chinese initially used the compass to determine the orientation of buildings, as the influence of feng shui led many to believe that aligning structures along the cardinal directions could bring good fortune. Later, the compass was determined to be vital for navigation since it could determine a ship's direction relative to the Earth's magnetic poles at all times. The European acquisition of this instrument allowed them to sail further into the Mediterranean more confidently, and later – the Atlantic.

Another key navigational instrument was the **astrolabe**, which originated in the Greek city-states around 150 BCE. This device, improved by the Arabs, could accurately determine the **latitude** of a ship at sea by measuring the sun's noon altitude or the altitude of a star at night.



An astrolabe

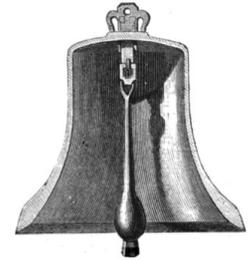
Along with more reliable navigational tools, Europeans acquired technology that provided for more seaworthy ships. Up until the second c. CE, European vessels primarily consisted of square sails that could only travel with the direction of the wind currents. The only way their ships could travel into the wind was by means of rowing. That is until the triangular, or **lateen sail**, made its way to the Mediterranean Sea via the Persians or the Arabs. The lateen sail enabled ships to tack, or sail into the wind, greatly improving navigation and safety on the open seas.

An invention that greatly helped the Europeans was the **sternpost rudder**, which originated in China around the first c. CE. Prior to this, vessels often turned direction by use of steering oars off the sides or the stern (the back – or aft) of the ship. With the advent of the sternpost rudder, which made its way to the Ancient Romans, steering became much more efficient and reliable.

Another innovation from China, **gunpowder**, was a chemical explosive created out of a mixture of sulfur, charcoal, and potassium nitrate (saltpeter). It was likely

first discovered by Taoist monks in the ninth c. CE who were seeking a formula for immortality. While the Chinese may have first used gunpowder for fireworks, they rather quickly adapted it for weapons such as flamethrowers, bombs, and eventually for use in projectile weapons. The Mongols were likely the first ones to introduce gunpowder to the European mainland by the mid to late thirteenth century while they were marauding across the Eurasian supercontinent.

Many of the first **cannons** made in Europe were produced utilizing wood, leather, or stone. However, these early designs were rather unreliable and had the nasty habit of occasionally exploding, causing massive injury or death to the cannons. More reliable cannons were produced using bronze, likely by bell makers in foundries. It is a logical progression and fusion of technology to narrow the opening of a bell into the shape of an elongated barrel, and use the ball at the end of the clapper (that strikes against the inside of the bell) as the cannonball. By the early fourteenth century, Europeans were using smaller, hand-held cannons that were the precursors to **guns**. However, even a century later, the use of cannons and hand-held guns were still in their infancy and they proved to be quite inaccurate. Nonetheless, gunpowder and cannons gave the users an enormous psychological advantage as the sound and smoke emanating from these weapons was frightening and intimidating, not to mention that –on occasion– they would hit their target causing gruesome injuries or death.



Cutaway of a bell showing the clapper inside.



Earliest picture of a European cannon, c. 1326

From the Middle Ages to the Renaissance

After the pestilence of the Black Death subsided in the mid fourteenth century, feudalism weakened greatly. Property values plummeted due to the heavy losses of life, reducing the demand for land, which had been the source of power and wealth of the nobles (feudal lords). As such, money was increasingly used as a medium of exchange rather than land. The survivors of the Plague inherited property and money from their relatives, which enabled many to pay rent for their land, throw off their feudal obligations, and live freely.

With the increased use of gunpowder and improved reliability of cannons and guns, monarchs (e.g., kings and queens) relied less on feudal armies supplied by nobles, and could afford to maintain their own forces. These factors, among others, led to the increased formation of states with monarchs interested in reducing the power of the nobles to increase their own. This decline of feudalism opened the way for the cultural, social, and economic changes associated with the **Renaissance** (meaning “re-birth”), beginning in Italy in the fourteenth century, and ultimately diffusing throughout Western and Northern Europe up through the seventeenth century.

The reasons for Italy growing onto the hearth of the Renaissance are many - and disputed. However, one primary factor was certainly its **geographic situation**. The Italian city-states, such as Florence, Venice, and Genoa were positioned near the geographic center of the Mediterranean Sea. They were centers for trade and commerce, emanating from the Middle East, India, and China through the Silk Road. The Italian city-states were often the first ports of call for both goods and new ideas. Italy was a place rich in tradition; Italians lived amongst the ruins of the once great Romans and were continuously reminded of the triumphs of the classical empire. The Catholic Church situated in the Papal States garnered a great deal of **centrality** - or pull - due to its capacity to attract people and wealth from surrounding regions. Since the Church controlled so much of the political, economic, and intellectual life of Europe, it gathered many of the best minds, wealthiest men, and powerful leaders unto itself. This agglomeration of money and minds created the ideal location for new ideas to be conceived and supported.



Another major factor for Italy becoming the hearth of the Renaissance dealt with the **culture** of the region. Italy was a multi-state nation, in which the inhabitants mostly spoke Italian, practiced Catholicism, and had a common history, but were divided politically among several city-states. Various leading families within each region, as opposed to a centralized government, administered the city-states. This vacuum of leadership allowed merchant families to gain considerable influence within each city-state, allowing them to adjust the laws of banking and commerce in their favor. The freer atmosphere within the Italian states led to an active exchange of both goods and ideas. This coincided with the rise of humanism, which emphasized the classical Greek and Roman studies of art,

music, and science, as opposed to the medieval educational focus on law and theology. The merchants of various Italian cities had built up considerable wealth over the centuries to the point they could better afford to patronize the arts and sciences better than almost anyone else. As such, the Italian states proved to be the right place with the right conditions for original expression to flourish, and for new thoughts to emerge. However, another multi-state nation - The Holy Roman Empire - consisting of hundreds of German states, would be the hearth of another fantastic jump forward for mankind.

The Ascendancy of Europe

The Renaissance, and Europe’s ascendancy into the most dominant region of the world would not have been so pervasive if not for one of the most influential innovations in human history, devised by a German goldsmith. Arguably the most important invention to come out of Europe during the Renaissance was Johannes Gutenberg’s **movable type printing press**, originating around 1440 in Strasbourg, one of the German states.

Gutenberg’s Great “Invention”

Gutenberg was not the first person to utilize movable type printing. As with many great developments of this era, it was a Chinese inventor - Bi Sheng - who likely invented this particular technique around the 1040s (four centuries before Gutenberg). Earlier forms of printing using wooden blocks date even further back in China to the ninth century. However, despite their immense head start, the Chinese failed to experience a printing revolution as Europe did several centuries later - largely due to language. Bi Sheng created around 3,000 Chinese characters out of porcelain that were arranged on an iron board when an article was to be printed.² However, his system was very expensive, requiring immense amounts of labor to manipulate the thousands of tablets.³ The Chinese language consists of as many as 50,000 characters and symbols, making printing in this language an unwieldy process.

It is noteworthy that the Gutenberg printing revolution would not have been possible had it not been for the synthesis of other innovations - one being rag paper. The invention of paper dates back to Han China in the second century BCE. Later, the Chinese produced rag paper, made from a pulp of water and discarded rags that were then pressed into sheets of paper. This process made its way across the Silk Road over centuries to eventually emerge in Europe around the ninth century CE. During the Renaissance, the survivors of the Black



A memorial depicting Bi Sheng, inventor of moveable type printing.

Death often spent their newfound wealth on clothing, which would eventually wear out, providing a cheap and abundant source of tattered clothes for making rag paper throughout Europe. The same squeeze press used to transform pulp into sheets, would later be adjusted by Gutenberg to press ink evenly onto paper.

Another key innovation for the success of printing was oil-based ink, which was superior to previously used mediums. Water-based inks were commonly used for writing and copying texts, but their consistency was insufficient for printing cleanly pressed paper copies. While oil painting dated back to the seventh century CE, it wasn't until the Renaissance artists who, in their search for a more durable paint, developed improved varieties of oil-based paint. Due to the work of Renaissance artists, finding ink that would adhere to metal type and not run on paper was a much more manageable task for the likes of Gutenberg.

Additionally, the German **alphabet** is based on 26 characters, whereas the Chinese language consists of thousands of symbols. The need to maneuver far fewer pieces allowed for a system much more efficient than what had been utilized for centuries. Previously, copies were made by hand, which was a long, slow, arduous, and expensive process. The work carried out by literate monks (who were not in great supply) took months, or even over a year to copy a single text. By contrast, Gutenberg's printing press featured metal keys that didn't wear out over time, and could initially produce hundreds of pages in a single day. Having a relatively small number of letters made the production of printed materials much easier, quicker, and cheaper. As a result, the cost of books plummeted, and literacy became something that was useful for commoners, as opposed to only the clergy and the elite.

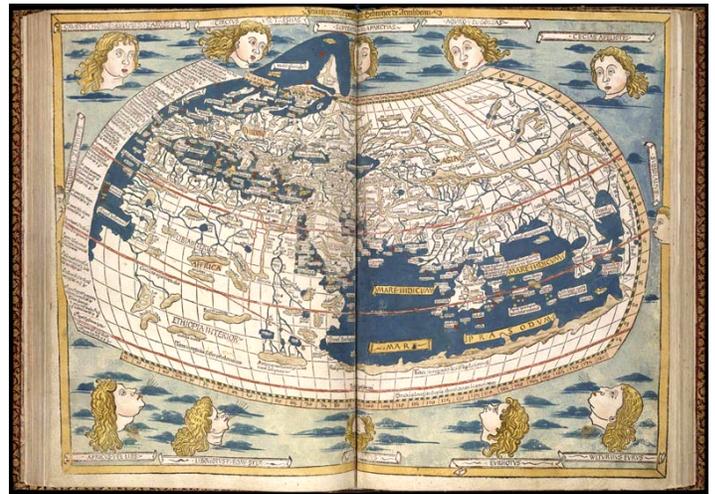


Printer operating a Gutenberg-style screw press.

an *italic* font that took up less space, therefore requiring fewer pages for books and saving money; this font style is still widely used to this very day.

As a result of the movable type printing press, the pace and breadth of the **diffusion** of ideas increased dramatically throughout Europe. The spread of infor-

mation and knowledge was a quantum leap from what it had been previously, and the pace of change increased precipitously. With improved printing, came enhanced **cartography**, producing maps that were more accurate and less expensive. These advancements emboldened many explorers to bravely set out on their expeditions, knowing they could plot a course as accurately as possible.



World Map in *Cosmographia*, Claudius Ptolemaeus Ulm, 1482.

The Fall of Constantinople

“Money makes the world go ‘round.” This statement could not be truer with regard to the Europeans’ prime motivator in setting out to explore and expand. Acquiring and developing the means to search the open seas did not inherently compel civilizations to carry out massive expeditions and conquest. Clearly the Chinese and Arabs, among others, had acquired navigational technology as well as gunpowder far earlier than the Europeans. However, these empires did not grow to dominate the globe as Europe eventually would. It would take a massive increase in prices to motivate the Europeans to seek out alternate trade routes; and this increase in prices came at the cost of one of the most prominent European cities since antiquity.

Constantinople had been one of the most important cities in the world due to **geopolitical** factors, which focus on political power with relation to geographic space. It was situated at the crossroads between the Eastern and Western worlds, and was one of the most important centers of trade along the Silk Road. Therefore, its relative location was unquestionably important. Constantinople had been a capital city since its consecration in 330, and was the heart of what remained of the once powerful Byzantine Empire. However, its power had diminished due to multiple sieges over centuries, and the impact of the Black Death that killed almost half of its inhabitants. The Ottoman Turks, by contrast, had expanded into European territory since the late fourteenth century. The Muslim Turks - growing in power, wealth, and land - set their sights on the invaluable port city of Constantinople.

The notion that Europe was the heart of **Christendom** – the community of Christians – underscores the fact that the region was significantly fragmented. When the Ottoman Sultan ordered the construction of a fortress north of Constantinople, the Byzantine Emperor recognized this as an effort to prevent outside reinforcements in the event of an attack. He pleaded with the Pope for assistance, but ethnic divisions between the Italians and Greeks due to years of animosity and fighting resulted in scant support. Furthermore, the Pope's authority had been diminished over time because of the decline of feudalism coupled with the increasing power of monarchs, who focused their energies and resources on their own states. As is common with most leaders, they preferred to tend to their own needs, as opposed to the greater good of the entire region. While some troops from Europe did eventually arrive in Constantinople, their numbers were inadequate in counterbalancing the size and strength of the Ottoman forces.



The Eastern Mediterranean in 1450, showing the important relative location of Constantinople. Credit: MapMaster

In 1453, the Turks laid siege to Constantinople. By this time, the city was little more than a number of villages separated by vast fields encircled by a series of defensive stone walls. The use of gunpowder and cannons rendered the fortifications vulnerable, however, the walls could be repaired between reloading. What ultimately led the city to fall were the massive numbers of the Ottoman forces, which overwhelmed the undersized Byzantine army after a seven-week siege. The last remnants of the Roman Empire – and the Middle Ages – collapsed along with the Fall of Constantinople, an empire that had lasted for nearly 1,500 years.⁵

The resulting **migration** of scholars and other emigrants from the fallen Byzantine Empire into Europe added to European humanism and science. Many of these Greeks brought manuscripts of much higher quality than was found in most of Europe, adding to scholarship during the Renaissance. Meanwhile, the Turks took to rebuilding their newly conquered city. In the Islamic world the city was often called *Kostantiniyye*; it was not officially renamed Istanbul – as is commonly claimed – until the twentieth century.

The prices of goods passing through Constantinople had remained relatively stable and predictable for centuries, however, the costs were raised once the Turks gained control. The increase in prices initially was largely due to the reduction in trade and increase in fees, as is common in times of war. Nonetheless, the prices for goods remained relatively high, and luxury goods – such as silk, spices, and porcelain – often rose significantly (some items were marked up by as much as 1,000 percent!). Additionally, most Europeans preferred not to trade with the very Muslims who had conquered one of their greatest cities, and support their ongoing expansion. There were more than enough reasons to convince several Western European states to search for an alternate route, bypassing the Silk Road, and connecting them directly to the Spice Islands of the East Indies.

Mercantilism – the Great Motivator

Even before the Fall of Constantinople, the European population had largely recovered from the Black Death by the early fifteenth century. With more people, came greater demands on food, goods, and services, leading to greater scarcity. Shortages ultimately led to **inflation**, a sustained increase in the general price level of goods and services in an economy. **Mercantilism** was the economic theory of the era that sought to solve the conundrum of inflation in Europe.

Mercantilism was a form of economic nationalism, which held that the wealth of a state (country) was dependent on its supply of **bullion** (precious metals such as gold and silver). Since these metals were scarce and could be minted into bars and coins, they possessed great value. Bullion was voraciously sought after to increase states' prosperity. Mercantilism thrived under powerful monarchs who believed the government should play a protectionist role in the economy by encouraging exports and discouraging imports.

To better organize companies and commerce, **monopolies** were promoted, in which a single enterprise would become the sole supplier of a particular good or service. It was easier for a king or queen to manipulate a single company, as opposed to scores of competitors. Consequently, prices rose due to a lack of businesses competing against each other. Monopolies were often sustained through the use of **subsidies**, or money paid to a business through the government. **Tariffs**, or taxes on imports, were levied to ensure their populations bought more domestic goods as opposed to foreign goods. Logically, other states would impose their own tariffs, further raising the prices of goods in the region. This system led to massive competition between the states of Europe.



Struck from 1252 to 1523, the Italian Florin was the first European gold coin to play a significant role in their mercantilist economies.

Mercantilists believed wealth could be increased best through the acquisition of bullion and through a positive **balance of trade** with other states (exports minus imports). To achieve this goal, many European states took to the seas, rather than wage war against each other. Since most of Europe possessed relatively equal weaponry, the winner of a war against another in the region would still likely suffer unacceptable losses. However, most regions outside of Europe possessed technology that was far less advanced, making them significantly easier to conquer and control. Therefore, central to the mercantile system was the development of overseas **colonies**, or territories under the control of a state.

The majority of the early colonies were established for the sole purpose of finding and exporting gold and other precious metals to the Mother Country. Colonists were usually forbidden from setting up their own industries to manufacture goods. They were also usually restricted from buying goods from foreign countries. Importing bullion as well as other cheap raw materials from colonies and then exporting manufactured goods to foreign markets proved to be a lucrative enterprise.

The Age of Discovery

By the start of the fifteenth century, Europe acquired substantial benefits from their connections with the empires of the East. Valuable plants and animals, as well as advances in shipbuilding and navigational technologies provided them with the means to explore and dominate lands outside their continent. Considerable innovations of their own through the Renaissance, such as the printing press allowed them to arguably surpass the power of their rivals throughout Eurasia. The European system of competing states stimulated them to improve themselves, while the rise in prices after the Fall of Constantinople encouraged them to look outside of their region for solutions. Italy had become the focal point of commerce with regions outside of Europe, due in large part to its fortunate geographic location at the center of the Mediterranean Sea.

However, the **Age of Discovery** – lasting between the fifteenth and seventeenth centuries – did not originate in the Italian city-states where the Renaissance had first taken hold, nor the Northern European states in which the Renaissance primarily expanded. This first era of true globalization took hold in Western Europe, farthest away from the economic activities of trade in the Mediterranean. In fact, it is largely due to the geographic location of these states that they were the first ones to set out in search of new trade routes.

Portugal and the Five Themes of Geography

The societies of the Iberian Peninsula – Portugal and Spain – were the first European countries to explore and find new lands previously untouched by Europeans. Furthermore, it was Portugal that took the lead and became the first state to establish a truly global empire. To explain this, the **Five Themes of Geography** will be utilized, which have been a cornerstone of geographic edu-

cation since the Association of American Geographers (AAG) adopted them in 1984.



Satellite image of the Iberian Peninsula.

The first theme to investigate is **location**, which focuses on the position of people and things on the Earth. This spatial perspective looks at where and why processes occur. Absolute location refers to specific positions, often described by its latitude and longitude. Relative location, by contrast, is described by where it is compared to something else.

Portugal is situated along the Atlantic Ocean, which is significant because it was the Mediterranean Sea that was the focus of European commerce and wealth at that time. This helps to explain why the Italian states were generally very wealthy, and why they did not generally feel the need to explore for new trade routes or opportunities. Since Portugal has a long coastline, yet no direct connection to the Mediterranean, it motivated them look to the Atlantic for new sources of trade and wealth.



The European political borders around 1500 CE.

To understand another reality of relative location, consider Bohemia in the fifteenth century. It was far from the wealthiest kingdom in Europe, yet even if it was, the Bohemians never could have engaged in massive overseas expeditions. The reason for this is because Bohemia was **landlocked**, with no direct access to the open seas. It would have been a virtual impossibility for them to explore the oceans in any capacity.

Another important theme is **human-environmental interaction**, which describes how people interact with the environment, and how the environment affects people. Three key concepts emerge, in that humans depend on, adapt to, and modify the environment. Because Portugal resided along the Atlantic Ocean, they possessed several well-developed port cities - such as their capital Lisbon. Portugal had a maritime history and culture that had experienced oceanic travel for centuries, no matter how minimal it may have been.

The next theme to consider is **region**, which constitutes an area with distinctive characteristics. Regions are human constructs, they are categories we use to understand phenomena, which are not evenly distributed across the globe. Consider this analogy, in history we divide time into eras, ages, or periods. For example, the Age of Discovery was an era of exploration, commerce, and conquest that lasted between the fifteenth and seventeenth centuries. So, in history we periodize times that share common characteristics into eras, whereas in geography we categorize places that display common characteristics into regions. Europe was a **core** region in that it was rich in technology, scholarship, and wealth. Even though the Portuguese were not particularly rich, they benefited greatly from the general European technological and economic advancements. By contrast, most of the kingdoms and tribes in Sub-Saharan Africa were along the **periphery**, or regions that were relatively poor or distant from centers of commerce and activity. Even though many kingdoms in this region resided along the Atlantic coast, they had not received the same technologies and ideas the Europeans had due to their remoteness.

Another theme is **movement**, which refers to the mobility of people, goods, and ideas across the surface of the Earth. Many goods made their way into Europe through the Italian city-states along the Mediterranean Sea. By the time many goods had reached Portugal, either over land or through the Strait of Gibraltar, their prices had increased (sometimes dramatically). This example illustrates the **friction of distance**, which is the increase in time and cost associated with increasing distance. The psychological impact of this led to **distance decay**, which essentially means the greater the distance the less the interaction. However, because of these factors, the Portuguese were further motivated to explore, and the Atlantic offered a route to Africa, where conquest and trade could offer new opportunities. Contrarily, the Italians did not have the motivation to explore because of their location at the hub of European trade along the Mediterranean.

The final theme, **place**, refers to the uniqueness of a location, or the uniformity of two or more different locations. Societies develop a **sense of place** by assigning are-

as of familiarity with meaning and emotion. People become connected to the land in which they reside, and where their ancestors resided. People also develop **perceptions of places** in which they are unfamiliar through the accounts of others, either directly by word of mouth, or by means of books, pictures, or other accounts.

The Muslim empire of the Moors from North Africa had invaded the Iberian Peninsula in the eighth century. However, after years of warfare Portugal had once again become an independent kingdom in the twelfth century. By the early fifteenth century the Portuguese embarked on a crusade of their own, and besieged North Africa to spread Christianity, and of course, to gain wealth. Their long history of domination by Muslims, in some part, goaded them into the Age of Discovery.

Portugal's Push into the Seas

In the beginning of the fifteenth century, Portugal was not a world power. It rested at the western edge of Europe in the Iberian Peninsula, along with Spain, physically separated by the Pyrenees Mountains. Portugal was small in size and in wealth relative to many other European states. Facing rising impoverishment due to depopulation from the Black Death and ensuing epidemics, several within the leadership of Portugal sought resources outside of Europe. In 1415 they raided, captured, and plundered a Moroccan seaport across the Strait of Gibraltar. However, the Portuguese set their eyes past the lands directly to their south, and to the riches the seas could hopefully provide.

A Portuguese man known today as **Prince Henry the Navigator** would become the main initiator of the Age of Discovery. Even prior to the Portuguese expansion into Morocco, prince Henry used his position and royal coffers to entice experts of various fields to come and work in Portugal. He employed navigators, cartographers, astronomers, and other specialists to aid in developing improved technology to explore and chart the western coast of Africa. People are attracted to opportunity. The agglomeration of people and wealth in one location greatly accelerated the pace of progress, as the experts could assist and learn from each other while working in such close proximity.

The European ships of the Mediterranean were too slow and heavy to sail into the dangerous open seas, so under prince Henry's leadership the **caravel** was developed. This new type of ship was smaller, lighter, and much more maneuverable for the un-



A lateen-rigged caravel.

predictable oceans. The caravel combined the sternpost rudder, lateen and square sails, as well as other new innovations. This synthesis of technology gave the ship greater speed, the ability to sail windward (into oncom-

ing wind), and the capability of traversing deep oceans as well as the shallow waters along rivers.

The Portuguese were motivated to find the source of the West African gold trade, as well as to spread their Christian faith. Prince Henry sponsored many voyages, receiving a 20% tax on the profits gained from naval expeditions; he was a businessman after all. Over decades, Portuguese expeditions pressed out into the Atlantic and further down the African coastline.



Prince Henry the Navigator

The Ottoman victory at Constantinople in 1453 sent shockwaves across Europe, and the ensuing rise in prices of many goods motivated the Europeans to search for alternate routes to the riches of the east. Prince Henry helped give the Portuguese a sizeable advantage in finding a pathway to the east by way of the waters. However, it is a virtual certainty that he never would have been in a position to accomplish so much had Portugal not been in such an advantageous geographic position at the right time in history. By 1471, the Portuguese had reached the equator, and found – to their relief – the ocean there did not boil. After further voyages, they realized the temperature decreased as they sailed further south.

The maps in Europe at that time depicted very little knowledge of the African continent despite some charting along the coasts. The Portuguese, as well as the Europeans, did not know if there was a water route around Africa. That is, until 1487, when **Bartholomeu Días** (DĒ-ahz) commanded a sea expedition ordered by the Portuguese king to find a route to the Indian Ocean. On the voyage, his ship was blown off course by a violent storm. In attempting to find the coast again, Días and his crew discovered they had rounded the southern tip of Africa. He initially wanted to sail into India, but chose to turn around when his crew potentially threatened mutiny.¹ Upon his voyage back, they discovered the Cape of Good Hope, then sailed into Lisbon by the end of 1488. The expedition was a success; Días was celebrated as a hero, and the completion of a direct route to the ports of the east were merely a matter of time.

Columbus' Gamble to the West

A great effort of Christendom was the **Reconquista** (“reconquest”), a centuries-long fight to reclaim land in the Iberian Peninsula that had been taken through Islamic conquest by the Moors. The goals of the Reconquista also extended to the Jews, who were seen as outsiders in these lands. Multiple armies fought for these goals, and even the Catholic Church had funded campaigns to reclaim

¹ Días initially named the southern tip the “Cape of Storms,” but the Portuguese king renamed it the “Cape of Good Hope” because it represented the pathway to the east. Additionally, the new name was far more enticing in attracting new explorers for future expeditions.

this territory. In 1469, King Ferdinand of Aragon married Queen Isabella of Castile, uniting their Catholic lands, creating the single political unit of Spain. By 1492, Ferdinand and Isabella completed the Reconquista by driving out the Moors in the southern lands of Grenada. In doing so, they established a stronger **nation-state**, in which the vast majority of the people of a country share similar cultural attributes (e.g., language, religion, and heritage). It was in this same year that an experienced Genoese sailor, **Christopher Columbus**, made his way to Isabella to fund a westward maritime expedition.



Christopher Columbus

For years Columbus had sought out multiple audiences with leaders and financiers about his idea for a shorter route to the East Indies by sailing west across the Atlantic. Contrary to some modern beliefs, the educated people of that era did not believe the earth was flat, but indeed round. The ancient Greeks had even known this, and approximated the circumference of the globe (around 25,000 miles) with fascinating accuracy. Columbus' measurements, however, were off by more than 6,000 miles.

The Italian city-states, favorably situated in the heart of the Mediterranean, turned Columbus away. The Portuguese also declined his offer, considering his measurements deplorably inaccurate. Columbus was initially rejected by Isabella, however, her finance minister offered to support the expedition with his own funds. Desiring their own direct route to the Indies and the opportunity to convert thousands of Asians to Catholicism, Columbus was supplied with three ships – the *Niña*, the *Pinta*, and the *Santa Maria*.²

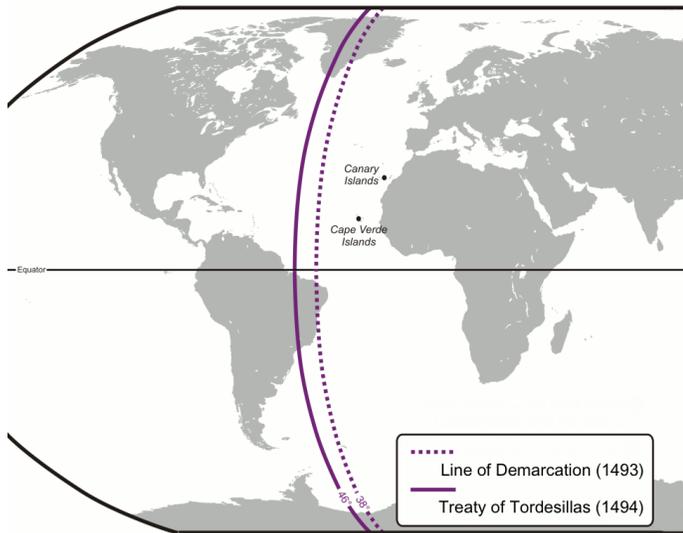
Columbus set out westward across the Atlantic in 1492, and landed on what is called San Salvador today, an island in the Bahamas. Believing they had reached islands off the coast of Japan in the Indies, they referred to the inhabitants as “Indians.” However, upon their return to Spain, the plant and animal samples led many to conclude they had landed in parts unknown. Unfortunately for Columbus he did not agree with this conclusion and mounted three more unsuccessful expeditions to find Asia. He died in Spain a pauper; unaware of the impact he would have on the world from that time on.

Isabella claimed the newly discovered lands as her own personal property, and appealed to the Pope for exclusive rights to the territory. A previous treaty had granted all lands south of the Canary Islands to Portugal, which would have included the lands discovered by Columbus. In 1493, as a compromise, an imaginary “Line of

² Despite being a female, Isabella's title was actually “king” and she insisted that people refer to her as such.

³ *Niña* & *Pinta* were nicknames; “Pinta” was a name that meant “painted one” (a term referring to a prostitute).

Demarcation” was drawn from pole to pole approximately 400 miles west of the Canary Islands. All new lands to the east of that line were granted to Portugal, whereas all new lands to the west were granted to Spain. Later in 1494, the line was moved further west through the **Treaty of Tordesillas**. Nonetheless, the treaty still only gave these countries rights to land south of the Canary Islands. Even though this treaty was loosely followed and minimally enforced, it all but assured – quite unintentionally – that Spain would eventually dominate the New World.



Lines dividing the non-Christian world between Spain and Portugal: the 1493 Line of Demarcation (purple dotted) and the 1494 Treaty of Tordesillas (purple solid).

Portugal – The First Global Empire

Despite Columbus’ discovery, the riches of the “New World” would still take decades to materialize in Europe. However, after Días’ expedition, an all-water route around Africa was not only attainable, but also inevitable. The first man to complete this task was **Vasco da Gama**, a Portuguese captain who led a fleet of four ships with a crew of 170 men in the summer of 1497. The ships under his command followed the route pioneered by previous voyages, up to the Cape of Good Hope. From that point, he traveled along the eastern coast of Africa, across the Indian Ocean, and then landed in Calicut, India. Possessing little the locals wanted, the Portuguese paid directly with gold and silver at extremely high prices for the region, but at only a fraction of the cost in Europe. By the time da Gama had returned to Portugal around two years after he had left, two ships had been lost, and over half the men had died with most of the survivors suffering from scurvy. However, the cargo they brought back, including large quantities of pepper and cinnamon, earned them more than sixty times the cost of the entire expedition. Da Gama was rewarded handsomely, and Portugal enjoyed a commercial monopoly over the Atlantic trade for decades.

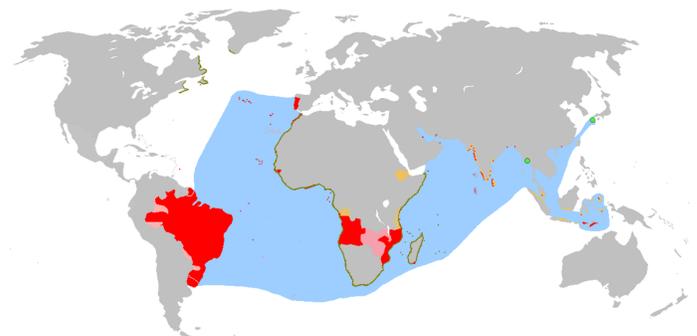
The Portuguese discovered Brazil in 1500 after an expedition of a dozen ships was blown off course. A year later a smaller expedition made its way to the new territory. On board was **Amerigo Vespucci** (*ah-MARE-ih-gō*

vess-POO-chē); a navigator and cartographer who was one of the first to believe the land they were exploring was an entirely new landmass. The territory was colloquially referred to as *Mundus Novus*, meaning “New World.” In 1507, the German cartographer Martin Waldseemüller, combined Vespucci’s accounts and maps of the new continent along with those of Columbus. His map was the first to show the Americas separate from Asia. This map is also famous because Waldseemüller derived the name of the new world from the Latinized version of Vespucci’s first name (Americus), calling it “America.”⁴



Universalis Cosmographia, Waldseemüller’s 1507 world map.⁵

In the early sixteenth century, the Portuguese sent **viceroy**s, or vice-kings, to India. Supported by superior technology, these men led the construction of several fortresses at strategic locations around the Indian Ocean, ensuring their control of trade in the area. By the middle of the century, the Portuguese reached China and established a trading post along its southern edge. They negotiated contracts with local merchants, essentially bribing them into supporting their intrusion in the region. Through careful diplomacy and relentless force, the Portuguese expanded their control of commerce across the seas.



The Portuguese global empire at its height, possessing territory that is now part of 53 sovereign states.

⁴ The name obviously stuck, but it is interesting to note the new territory could have been named “Vespuccia.”

⁵ In 2003, the U.S. Library of Congress purchased the only copy known to survive for \$10 million, since it is the first map in history to depict the Americas.

Portugal, a small nation with a population of less than two million citizens, established the first truly intercontinental empire in all of human history. The Portuguese established oceanic trade routes that connected shipping lanes between Europe, South America, Africa, and Asia. The speed of diffusion between these separate regions was accelerated. More goods from around the world changed hands more often than at any time before. European culture spread far and wide, including their languages, religion, clothing, and customs. More ominously, the Europeans also accelerated the transmission of disease, which had an especially devastating effect in the Americas.

Conquest of the Americas

Bartholomeu Dias' voyage around the Cape of Good Hope signified the beginning of the **Commercial Revolution**, which lasted from 1488 to the beginning of the eighteenth century.⁷ It was a period of European economic expansion motivated by colonialism and mercantilism. European states, headed by powerful monarchs, primarily sought out silver and gold in far away places. Throughout these centuries, the primary players of Portugal, Spain, Britain, France and the Netherlands colonized lands in virtually every major landmass across the globe.

While the Portuguese eventually boasted a global empire the likes of which no other civilization had achieved before, the Spanish had set their sights on dominating the majority of an entire hemisphere. By the early sixteenth century, it was largely acknowledged that a new world had been discovered. While the Treaty of Tordesillas granted Portugal rights to virtually half the planet, the Spanish maintained exclusive rights to the majority of the Americas. Spain sought to establish an overseas empire of their own, and voraciously set out to claim new lands. Two main influences inspired them, mercantilism and Catholicism. They were motivated to find gold and riches, and they were driven to convert indigenous people to Christianity.

Incursion into the Western Hemisphere

In 1519, **Ferdinand Magellan**, a Portuguese mariner, embarked on a Spanish expedition to accomplish what Columbus hadn't, to reach the riches of the east by sailing west. Beginning with five ships and around 270 men, they sailed around South America through what is now called the **Straits of Magellan**. For months they traversed the Pacific Ocean, landing in the Philippines while on the verge of starvation. It was here that Magellan finished his voyage, when he was cut down and killed by native Filipinos during a hostile engagement. Reaching the Spice Islands, the surviving crew traded for valuable spices and set out to return home. In 1522, one surviving ship with only 18 men hobbled back to Spain, the first expedition to **circumnavigate** – or sail around - the globe. While far from a rousing success, the long voyage did manage to turn a minor profit. Nonetheless, given the dangers and difficulty of the journey, the route proved to be too impractical for any realistic commercial interest.

Around the time Magellan commenced his great expedition, **Hernán Cortés**, a Spanish **conquistador** – or conqueror - embarked on a massive undertaking to claim the interior of Mexico for Spain. After he landed, reports of Cortés and his men were delivered to the Aztecs, and many believed these foreign intruders to be gods. The great prize the Spaniards sought was Tenochtitlan, the Aztec capital.

After rounding up forces and supplies, Cortés marched toward Tenochtitlan, accompanied by around 600 men, several horses, cannons, and thousands of native allies hostile to the Aztecs. Cortés and several of his men were allowed to enter the capital city because Moctezuma II, the Aztec king, wanted to bring them close to learn of the Spaniards' weaknesses; this would prove to be a grave mistake. Moctezuma II was captured in his own palace, and over the next two years Cortés would lay siege to Tenochtitlan, Moctezuma II would lose his life, and eventually the Spaniards would overtake the Aztec Empire in 1521. Horses, guns, as well as superior armor and tactics meant a clear victory for the Spanish.



Cortés scuttling his own fleet to eliminate the possibility of retreat.

Because of printing, the tales of Cortés' exploits were widely spread, read, and studied by others who sought to repeat his success. This is precisely what another Spanish conquistador, **Francisco Pizarro**, had in mind. After spending years exploring South America, in 1532 Pizarro sought the riches of the great Inca Empire. Travelling with around 200 men, Pizarro met with emperor Atahualpa where he was resting in Cajamarca after defeating his half-brother in a civil war. The timing couldn't have been better; the Inca Empire had been weakened through years of warfare and diseases brought on by the Spanish.

Pizarro met with Atahualpa, who as accompanied by thousands of unarmed troops, due to the small number of Spaniards who appeared to pose no real threat. Even though Atahualpa knew Pizarro and his men were not gods, many Inca thought they were incantations of their god of thunder – Virococha - who had a white complexion. Atahualpa expected to frighten Spaniards away and in turn, increase his stature as a living god.

Although accounts vary as to what exactly occurred at Cajamarca, Pizarro and his men opened fire with their guns and attacked Atahualpa's forces. In the ensuing hours, Atahualpa was captured, thousands of Inca laid dead, the Inca reinforcements were so frightened they never advanced. Not a single Spaniard was killed. Pizarro

seized the Inca Empire for Spain, and with the greatest South American Empire defeated, the Spanish began to dominate the continent.

Silver and gold poured into Spain by means of the Aztecs, Inca, and from other sources mined throughout the region. Interestingly, since no massive trade network was established connecting North and South America, more useful and ceremonial goods were typically exchanged. The Aztecs did not use metallic currency, and primarily used silver and gold for ceremonial purposes. Due to an over abundance of gold, it held little value and was referred to as the “excrement of the gods.” The Inca didn’t even use traditional money. Citizens were required to perform labor for the empire, and in return, the government provided for their needs (e.g., food, clothing, and housing). The Inca used precious metals for religious purposes, considering silver the “tears of the moon,” and gold the “sweat of the sun.” Had geography played these empires a different hand, they likely would have used these precious metals for trade as the Eurasians had.

Transformation of the Americas

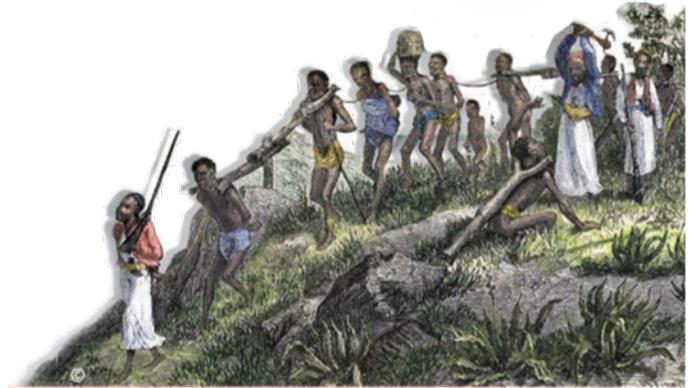
The introduction of European diseases such as smallpox and influenza into the Americas may have decimated the Native populations by as much as ninety percent within only a century and a half of the first landing in the region by Columbus. Europeans acquired American diseases such as syphilis, but the impact was far less disastrous. This is largely explained because the Europeans had lived among a plethora of large domesticated animals for centuries, whereas the Native Americans had not. Since the internal circulation systems of humans and large mammals are somewhat similar – the Europeans’ immune systems were more developed, leading to a very unequal exchange of diseases.



Drawing accompanying text in Book XII of the 16th-century Florentine Codex (compiled 1540–1585), showing Nahuas of conquest-era central Mexico suffering from smallpox.

The massive loss of life in the Americas led to a substantial labor shortage. The Europeans not only found gold and silver, but other commodities they could sell for immense profit. The Americas contained an abundance of

unique and coveted vegetation that did not exist in Europe, greatly increasing their demand and value. The cultivation of crops like sugar cane, tobacco, and exotic fruits increased the demand for cheap labor. As most of the Native Americans had died due to disease, the demand for cheap labor in the plantations and mines increased precipitously. To fill this void, **indentured servants** were often brought to the New World under the terms of service of around seven years. By the early seventeenth century, thousands had made their way into the Americas. Many indentured servants, working long and difficult hours, failed to live long enough to fulfill their contracts and earn their own lands. Another long-standing institution proved to be much more cost-effective – slavery.



Captured slaves on a forced march to a South American plantation.

By the thousands, slaves were imported from Africa; often captured by rival African tribes and empires. Slavery was a highly lucrative business that had persisted for millennia; however, the nearly insatiable need for cheap labor in the Americas increased the demand for slaves to a degree perhaps never seen before in history. Slaves were preferred to other types of laborers because of their immunity to old world diseases, and for the fact they were more accustomed to tropical climate. Additionally, many Europeans maintained the racist belief they were a superior race, and the Africans were inferior to them. Many Europeans viewed the Native Americans in a similar light, and there is little doubt they would have been used as slaves had they not died off in such colossal numbers.

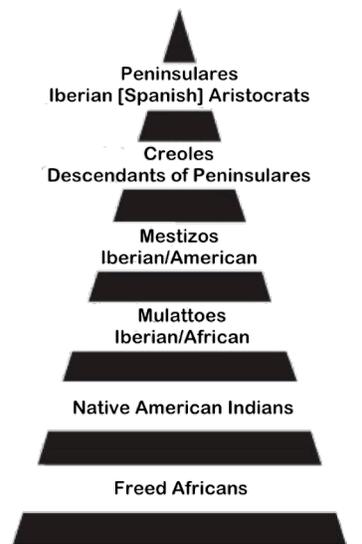
A great deal of **distance decay** separated the American colonies from their Mother Countries in Europe. It took anywhere between 70 to 100 days to travel from the Iberian Peninsula to South America. Nonetheless, with great expediency, the Spanish and Portuguese governments took direct control over their colonies. For instance, the **Council of the Indies**, a select group of royal bureaucrats, was organized to govern all Spanish-American affairs - legislative, judicial, commercial, financial, military and religious. Viceroy acted on their king’s behalf to carry out all orders sent across the Atlantic. As many orders would be seen as impractical or irrelevant to the needs of the New World colonies, viceroys could often delay im-

plementation, following an age-old dictum, “I obey but I do not enforce.”

Equally as important as the acquisition of gold, silver and wealth was the desire to “save the souls” of the Native Americans by converting them to Catholicism. The polytheistic beliefs of the Americans made it easier for them to accept Catholic saints and Mary - the mother of Jesus Christ - as superior gods, since the Europeans had conquered them so easily. From the onset, the Church was the primary provider of funds to the conquest of the Americas. Additionally, the Church was the single largest holder of property in the New World, and provided most of the education through their sponsored schools and universities.

The Iberian colonial societies in the Americas were organized according to European structures. A strict social hierarchy quickly materialized in the Spanish and Portuguese colonies. For instance, at the top of the pecking order in the Spanish colonies were the **peninsulares**, white people who were born in the Iberian Peninsula. They controlled the highest offices in the government and the Church. Below them were the **creoles**, white people born in the Western Hemisphere. Even though they were racially identical, the fact they were not born in Europe relegated them to a lower-tiered status. Regardless, they were still significantly influential, as the predominant owners of the mines, ranches, and haciendas - or the landed estates and plantations where most crops were grown.

The free people of other races were seen as undesirables, and as such, were considered to be below the white people. One of the main groups were the **mestizos**, or people of mixed descent, usually between the Iberians and Native Americans. Another main group were the **mulattos**, or people with Iberian and African heritage. These groups of people were excluded from many positions and lines of work, so they often worked as unskilled laborers and servants. Some managed to work in skilled crafts such as tailors or carpenters, but they were often few and far between. The lowest levels in the social hierarchy were the free Africans and Native Americans, whose status was only superior to the slaves.

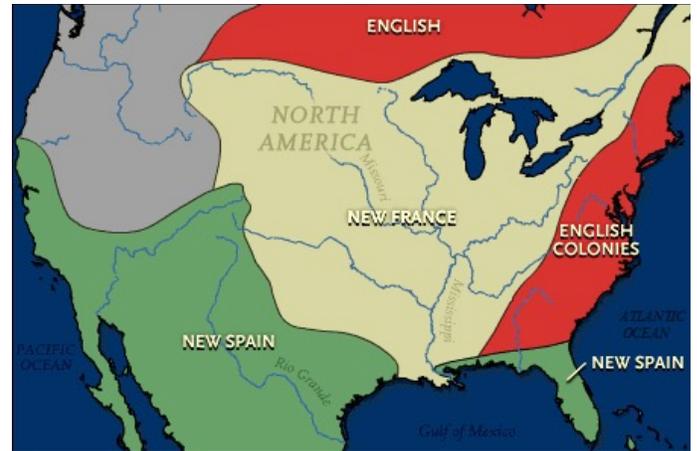


The Iberian-American social hierarchy in Spanish colonies.

European Expansion in the Americas

The Treaty of Tordesillas granted Spain lands west of the papal division line, but also restricted them only to lands south of the Canary Islands, which opened North

America to other European powers. It is for this reason that Spanish claims in North America were almost nonexistent, with a key exception being Florida. Contrary to Central and South America that contained large empires, most natives in North America typically lived in small villages of no more than a few thousand people at most.



Major colonial claims in North America by the seventeenth century.

Soon after Columbus had first landed in the New World, Europeans sought a new route to Asia. The English searched for a northwest passage through North America starting in 1497. While never successful in this endeavor, they did stake claim to lands across the eastern seaboard. Soon afterward, the French explored along the coast of Newfoundland and the St. Lawrence River, claiming land into the interior of the continent. However, these territories were found to be lacking in silver and gold, as well as a favorable climate to grow crops such as cocoa or sugar cane.

Europeans in the sixteenth century expended little effort in settling the north. However, by the seventeenth century, the English, French, and Dutch established permanent colonies. As trade expanded across the Atlantic, many goods in North America were found to be especially lucrative, such as minerals, distinctive trees, and unique furs. Despite the vast inequality in technology, a clash of cultures and values often placed the natives at a serious disadvantage. The infamous *Purchase of Manhattan* occurred in 1626, where the Dutch supposedly bought the island for 60 guilders worth of goods and trinkets (not much more than \$1,000 in today’s currency). While this exchange seems ridiculously one-sided, the natives did not view the land as property the way the Europeans had. Bolstered by their animist beliefs, the land was something to be shared with nature; to them, you could not own the land any more than you could own the sun or moon.

The Columbian Exchange

Christopher Columbus was not the first European to set foot in the new world; the Viking, Leif Ericson was recorded to have made landfall in North America around 1002. However, this discovery never led to any major changes in Europe or the Americas, and the Viking set-

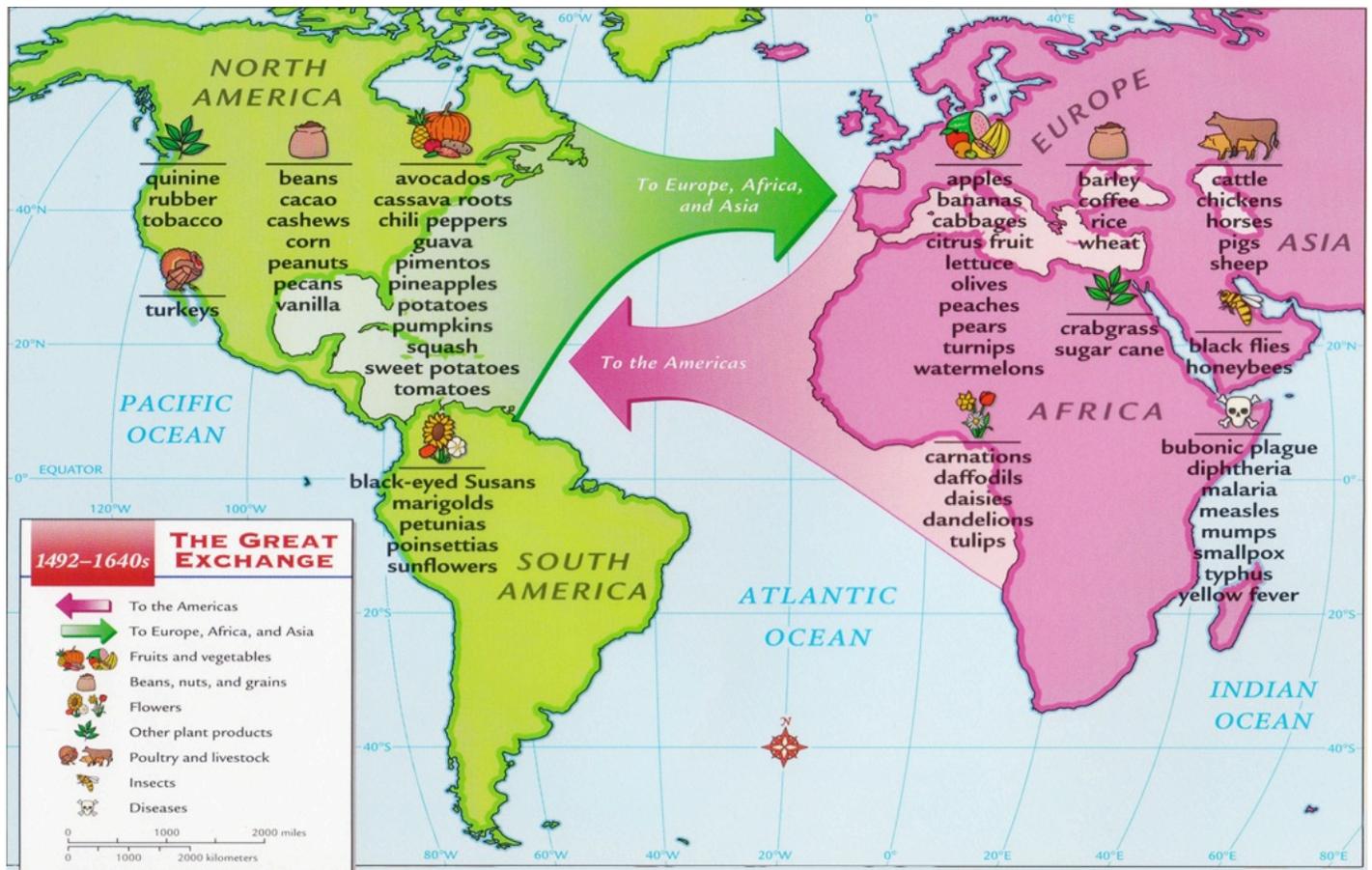
lements were abandoned centuries later. Columbus' first voyage in 1492 marked the beginning of the **Columbian Exchange**, connecting two hemispheres that had been largely isolated from each other for over ten thousand years. What ensued was the movement of people, specie (precious metals), plants, animals and diseases between the Eastern and Western Hemispheres.

From the Old World, the Europeans brought productive crops to the Americas, such as wheat, rice, sugar, coffee, grapes, carrots, beets, and bananas. Domesticated animals, such as horses, chickens, cows, sheep, goats, and pigs provided labor, milk, meat, hides, and a myriad of other uses. In turn, the New World provided a wealth of valuable resources, such as silver and gold initially. As the Columbian Exchange continued to develop, valuable crops made their way into Europe such as corn, potatoes, tomatoes, vanilla, chocolate, tobacco, and cotton. It is interesting to note that not a single potato grew in Ireland, nor did a single tomato grow in Italy until they were brought over from the Americas during this time period.

More ominously, diseases were also a key part of the Columbian Exchange. Syphilis, a debilitating venereal disease, diffused throughout Europe by way of sailors who had traveled to the Americas. While this disease spread like wildfire, it was nowhere as devastating as the exchange of European diseases into the Americas. Due to the exposure to diseases transferred between Europeans and livestock, their immune systems were far more enhanced as compared to the Americans. As such, the dis-

eases of the Old World were more numerous, and far more devastating. Smallpox, influenza, measles, plague, typhus, malaria, and other diseases laid siege to the Native Americans, who possessed no natural immunity to these afflictions. As a result, their populations declined perhaps as much as ninety percent by the middle of the seventeenth century. American societies collapsed, and were predominantly repopulated by the very people who had inadvertently brought the very diseases that precipitated their destruction. European population, plants, animals, culture, religion, and systems of politics and economics transformed the New World.

It is impossible to discuss all the reasons explaining precisely how and why Europe conquered the world. Many Europeans' desire for adventure, for religious freedom, and motivation to spread Christianity, were all-important factors in leading to the Age of Discovery. However, it is noteworthy that while Europe's fortuitous relative location and latitude enabled them to benefit from food, resources, and technology from foreign lands, it also allowed them to develop key immunities and amass great fortunes. These factors, along with Europe's cultural influences, political framework, economic motives, and their own ingenuity, enabled them – more than any other region – to alter the course of history and dominate the globe.



Geohistorical Concepts

Geography's Role in Global Disparity

Fertile Crescent
immunity
"New World"
magnetic compass (orientation)
astrolabe (latitude)
sternpost rudder
gunpowder
cannons
guns
Renaissance
geographic situation
centrality
culture
movable type printing press
Johannes Gutenberg
alphabet
diffusion
cartography
geopolitical factors
Christendom
migration
inflation
mercantilism
bullion
monopolies
subsidies
tariffs
balance of trade
colonies

The Age of Discovery

Five Themes of Geography
location (absolute and relative)
landlocked
human-environmental interaction
region
core
periphery
movement
friction of distance
distance decay
place
sense of place
perception of place
Prince Henry the Navigator
Caravel
Bartholomeu Días
Reconquista
nation-state
Christopher Columbus
Treaty of Tordesillas
Vasco da Gama
Amerigo Vespucci
viceroy

Conquest of the Americas

Commercial Revolution
Ferdinand Magellan
Straits of Magellan
circumnavigate
Hernán Cortés
conquistador
Francisco Pizarro
indentured servants
Council of the Indies
peninsulares
creoles
mestizos
mulattos
Columbian Exchange

Notes

¹ Gunpowder, Explosives and the State: A Technological History; Edited by Brenda J. Buchanan, University of Bath, UK; Ashgate Pub Co (May 30, 2006)

² Needham, Joseph (1994). *The Shorter Science and Civilisation in China*, Volume 4. Cambridge University Press. p. 14.

³ Zhou He (1994): "Diffusion of Movable Type in China and Europe: Why Were There Two Fates?", in: *International Communication Gazette*, Vol. 53, pp. 153–173

⁴ The Black Death at the Wayback Machine (archived June 25, 2008), Channel 4 – History.

⁵ Momigliano & Schiavone (1997), Introduction ("La Storia di Roma"), p. XXI

⁶ Spoken, Howard (2006). *The World's History* (Third ed.). New Jersey, U.S.: Prentice Hall. p. 444.

⁷ Whitman Rostow, Walt (1975). *How it all began : origins of the modern economy*. London: Methuen. p. 107.