The Columbian Exchange

An important historical study asserts that the most significant changes brought about by the Columbian voyages were biosocial. The Age of Discovery led to the migration of peoples, which in turn led to an exchange of fauna and flora—of animals, plants, and disease, a complex process known as the **Columbian Exchange.** Spanish and Portuguese immigrants to the Americas wanted the lifestyle and diet with which they were familiar. Foods that Iberian settlers considered essential—wheat for bread, grapes for wine, olive oil for both culinary and sacramental purposes—were not grown in America. So the migrants sought to turn the New World into the Old: they searched for climatic zones favorable to those crops. Everywhere they settled they raised wheat—in the highlands of Mexico, the Rio de la Plata, New Granada (in northern South America), and Chile. By 1535 Mexico was exporting wheat. Grapes did well in parts of Peru and Chile. It took the Spanish longer to discover areas where suitable soil and adequate rainfall would nourish olive trees, but by the 1560s the coastal valleys of Peru and Chile were dotted with olive groves. Columbus had brought sugar plants on his second voyage; Spaniards also introduced rice and bananas from the Canary Islands, and the Portuguese carried these items to Brazil. All nonindigenous plants and trees had to be brought from Europe, but not all plants arrived intentionally. In clumps of mud on shoes and in the folds of textiles came immigrant grasses such as Kentucky bluegrass, daisies, and the common dandelion.

Apart from wild turkeys and game, Native Americans had no animals for food; apart from alpacas and llamas, they had no animals for travel or to use as beasts of burden. (Human power had moved the huge stones needed to build the monumental Aztec temples.) On his second voyage in 1493 Columbus introduced horses, cattle, sheep, dogs, pigs, chickens, and goats. The multiplication of these animals proved spectacular. By the 1550s, when the Spaniards explored, they brought along herds of swine. The horse enabled the Spanish conquerors and the Amerindians to travel faster and farther and to transport heavy loads.

In return, the Spanish and Portuguese took back to Europe the main American cereal, maize (corn), from Mexico; white potatoes from Peru; and many varieties of beans, squash, pumpkins, avocados, and tomatoes (which Europeans distrusted, fearing that they were sexually stimulating). Maize was the great gift of the Amerindians to all the peoples of the world as food for humans and livestock. Because maize grows in climates too dry for rice and too wet for wheat, gives a high yield per unit of land, and has a short growing season, it proved an especially important crop for Europeans. Initially they looked on the white potato with contempt, but they gradually recognized its nutritional value. Its cultivation slowly spread from west to east—to Ireland, England, and France in the seventeenth century; and to Germany, Poland, Hungary, and Russia in the eighteenth. Ironically, the white potato reached New England from old England in 1718.

Silver and the Economic Effects of Spain's Discoveries

The sixteenth century has often been called Spain's golden century, but silver was far more important than gold. The influence of Spanish armies, Spanish Catholicism, and Spanish wealth was felt all over Europe. This greatness rested largely on the influx of silver from the Americas.

In 1545, at an altitude of fifteen thousand feet where nothing grew because of the cold, and after a two-and-a-half-month journey by pack animal from Lima, Peru, the Spanish discovered an incredible source of silver at Potosí (in present-day Bolivia) in territory conquered from the Inca Empire. The place had no population. By 1600, 160,000 people lived there, making it about the size of the city of London. In the second half of the sixteenth century Potosí yielded perhaps 60 percent of all the silver mined in the world. From Potosí and the mines at Zacatecas and Guanajuato in Mexico, huge quantities of precious metals poured forth. To protect this treasure from French and English pirates, armed convoys transported it to Spain each year. Between 1503 and 1650, 16 million kilograms of silver and 185,000 kilograms of gold entered Seville's port. Spanish predominance, however, proved temporary.

In the sixteenth century Spain experienced a steady population increase, creating a sharp rise in the demand for food and goods. Spanish colonies in the Americas also represented a demand for products. Since Spain had expelled some of its best farmers and businessmen—the Muslims and Jews—in the fifteenth century, the Spanish economy was suffering and could not meet the new demands, and prices rose. Because the cost of manufacturing cloth and other goods increased, Spanish products could not compete with cheaper products made elsewhere in the international market. The textile industry was badly hurt. Prices spiraled upward faster than the government could levy taxes to dampen the economy. (Higher taxes would have cut the public's buying power; with fewer goods sold, prices would have come down.)

Did the flood of silver bullion from America cause the inflation? Prices rose most steeply before 1565, but bullion imports reached their peak between 1580 and 1620. Thus there is no direct correlation between silver imports and the inflation rate. Did the substantial population growth accelerate the inflation rate? It may have done so. After 1600, when population pressure declined, prices gradually stabilized. One fact is certain: the **price revolution** severely strained government budgets. Several times between 1557 and 1647, Spain's King Philip II and his successors repudiated the state debt, thereby undermining confidence in the government and leaving the economy in shambles.

As Philip II paid his armies and foreign debts with silver bullion, Spanish inflation was transmitted to the rest of Europe. Between 1560 and 1600 much of Europe experienced large price increases. Prices doubled and in some cases quadrupled. Spain suffered most severely, but all European countries were affected. Because money bought less, people who lived on fixed incomes, such as the continental nobles, were badly hurt. Those who owed fixed sums of money, such as the middle class, prospered: in a time of rising prices, debts had less value each year. Food costs rose most sharply, and the poor fared worst of all.

In many ways, it was not Spain but China that controlled the world trade in silver. The Chinese demanded silver for its products and for the payment of imperial taxes. China was thus the main buyer of world silver, serving as a "sink" for half the world's production of silver. Just as China was the heart of world trade, so was it, not Europe, the center of the early modern bullion trade. The silver market drove world trade, with the Americas and Japan being mainstays on the supply side and China dominating the demand side.

The Birth of the Global Economy

With the Europeans' discovery of the Americas and their exploration of the Pacific, the entire world was linked for the first time in history by seaborne trade. That trade brought into being three successive commercial empires: the Portuguese, the Spanish, and the Dutch.

In the sixteenth century naval power and shipborne artillery gave Portugal hegemony over the sea route to India. To Lisbon the Portuguese fleet brought spices, which the Portuguese paid for with textiles produced at Gujarat and Coromandel in India and with gold and ivory from East Africa (see Map 15.3). From their fortified bases at Goa on the Arabian Sea and at Malacca on the Malay Peninsula, ships of Malabar teak carried goods to the Portuguese settlement at Macao in the South China Sea. From Macao Portuguese ships loaded with Chinese silks and porcelains sailed to the Japanese port of Nagasaki and to the Philippine port of Manila, where Chinese goods were exchanged for Spanish (that is, Latin American) silver. Throughout Asia the Portuguese traded in slaves—black Africans, Chinese, and Japanese. The Portuguese exported to India horses from Mesopotamia and copper from Arabia; from India they exported hawks and peacocks for the Chinese and Japanese markets.

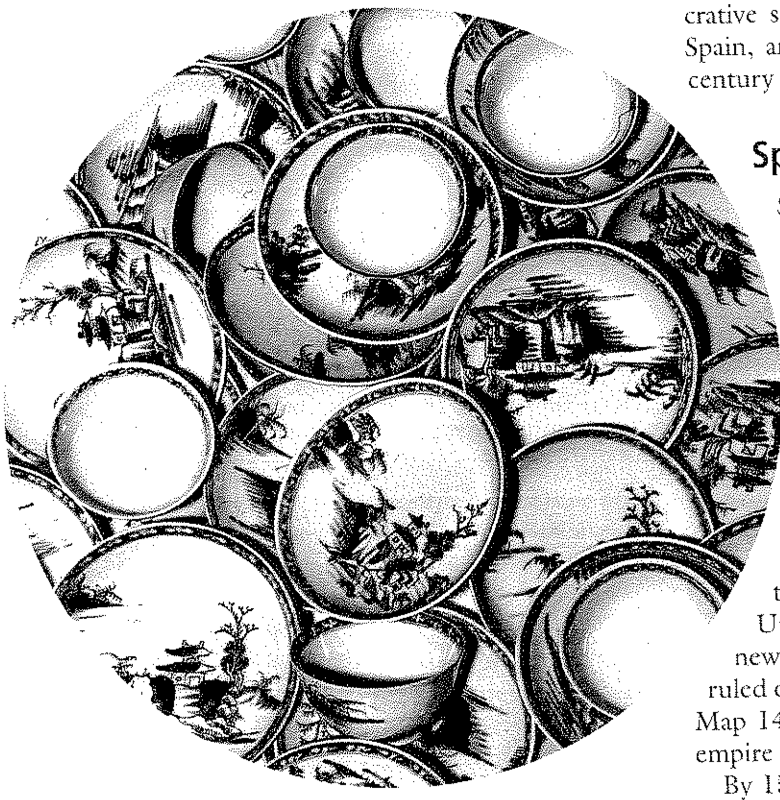
Across the Atlantic Portuguese Brazil provided most of the sugar consumed in Europe in the sixteenth and early seventeenth centuries. African slave labor produced the sugar on the plantations of Brazil, and Portuguese merchants controlled both the slave trade between West Africa and Brazil and the commerce in sugar between Brazil and Portugal. The Portuguese were the first worldwide traders, and Portuguese was the language of the Asian maritime trade.

Spanish possessions in the New World constituted basically a land empire, and in the sixteenth century the Spaniards devised a method of governing that empire (see page 538). But across the Pacific the Spaniards also built a seaborne empire centered at Manila in the Philippines, which had been "discovered" by Ferdinand Magellan in 1521. Between 1564 and 1571 the Spanish navigator Miguel Lopez de Legazpi sailed from Mexico and through a swift and almost bloodless conquest took over the Philippine Islands. The city of Manila henceforth served as the transpacific bridge between Spanish America and the extreme Eastern trade.

Chinese silk, sold by the Portuguese in Manila for American silver, was transported to Acapulco in Mexico, and from there it was carried overland to Vera Cruz for re-export to Spain. Because hostile Pacific winds prohibited direct passage from the Philippines to Peru, large shipments of silk also went south from Acapulco to Peru (see Map 15.3). Spanish merchants could never satisfy the European demand for silk, so huge amounts of bullion went from Acapulco to Manila. In 1597, for example, 12 million pesos of silver, almost the total value of the transatlantic trade, crossed the Pacific. After about 1640 the Spanish silk trade declined because it could not compete with Dutch imports.

Stimulated by a large demand for goods in Europe, India, China, and Japan, a worldwide commercial boom occurred from about 1570 to 1630. Many people throughout the world profited: capitalists who advanced money for voyages, captains and crews of ships, and port officials. As spices moved westward or northward, as silks and porcelains moved southward and westward, and as cloth moved eastward and westward, these various goods grew more valuable in the boom of long-distance trade.[31]

In the latter half of the seventeenth century the worldwide Dutch seaborne trade predominated. The Dutch Empire was built on spices. In 1599 a Dutch fleet re-



Chinese Porcelain This porcelain from a seventeenth-century Chinese ship's cargo, recovered from the sea, was intended for European luxury markets. *(Christie's Images)*

turned to Amsterdam carrying 600,000 pounds of pepper and 250,000 pounds of cloves and nutmeg. Those who had invested in the expedition received a 100 percent profit. The voyage led to the establishment in 1602 of the Dutch East India Company, founded with the stated intention of capturing the spice trade from the Portuguese.

The Dutch fleet, sailing from the Cape of Good Hope and avoiding the Portuguese forts in India, steered directly for the Sunda Strait in Indonesia (see Map 15.3). The Dutch wanted direct access to and control of the Indonesian sources of spices. In return for assisting Indonesian princes in local squabbles and disputes with the Portuguese, the Dutch won broad commercial concessions. Through agreements, seizures, and outright war, they gained control of the western access to the Indonesian archipelago. Gradually, they acquired political domination over the archipelago itself. Exchanging European manufactured goods—armor, firearms, linens, and toys—the Dutch soon had a monopoly on the very lucrative spice trade. The seaborne empires of Portugal, Spain, and Holland paved the way for the eighteenth-century mercantilist empires of France and Great Britain.

Spain's Global Empire

Spanish expansion into the New World and Asia are even more amazing when considered in light of Spanish expansion within Europe itself. As discussed in Chapter 14, Charles V combined vast and scattered territories across Europe under his rule. From his father's side, he inherited in 1506 the Burgundian lands, which included the Low Countries and Flanders, and in 1519 the Habsburg domains in Austria. As the grandson of Ferdinand and Isabella, in 1516 he became the first monarch to rule a united Spain. In 1530 he capped off this list by being named Holy Roman emperor. Under his reign, Spanish conquistadors brought new territories to Spain's colonial empire. Charles ruled over a vast and multiethnic array of territories (see Map 14.1 on page 460) and thus ruled the first global empire in history.

By 1556 Charles was exhausted by decades of administering this great empire. He had warred with France and the Ottoman Empire throughout his reign. He had also devoted enormous energy to a futile attempt to stamp out the burgeoning Protestant Reformation. (It was he who summoned Martin Luther to the Diet of Worms.) Charles abdicated the Spanish crown and the Netherlands to his son Philip II of Spain and Austria, and other territories in central Europe and the title of Holy Roman emperor to his brother Ferdinand.

Philip inherited his father's overseas Spanish Empire as well as the cascade of silver now flowing from the Americas. In today's world we might view the birth of globalization as a monumental turning point; Philip, however, was more concerned with religious rivalries in Europe. Traditional scholarship has depicted Philip as morose and melancholic, a religious bigot determined to re-impose Roman Catholicism on northern Europe. Recent research portrays him as a more complicated figure. In his youth, "he had visited northern Italy, the Alps, southern Germany, the Rhineland, the Netherlands, parts of France, and southern England."[32] He had walked the streets of Antwerp, Augsburg, Brussels, Cologne, London, and Trent. With the exception of his father, no other European ruler of the time had traveled or seen so much or had accumulated so much political experience in international relations.